AMERICAN AGRICULTURIST

For the Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON

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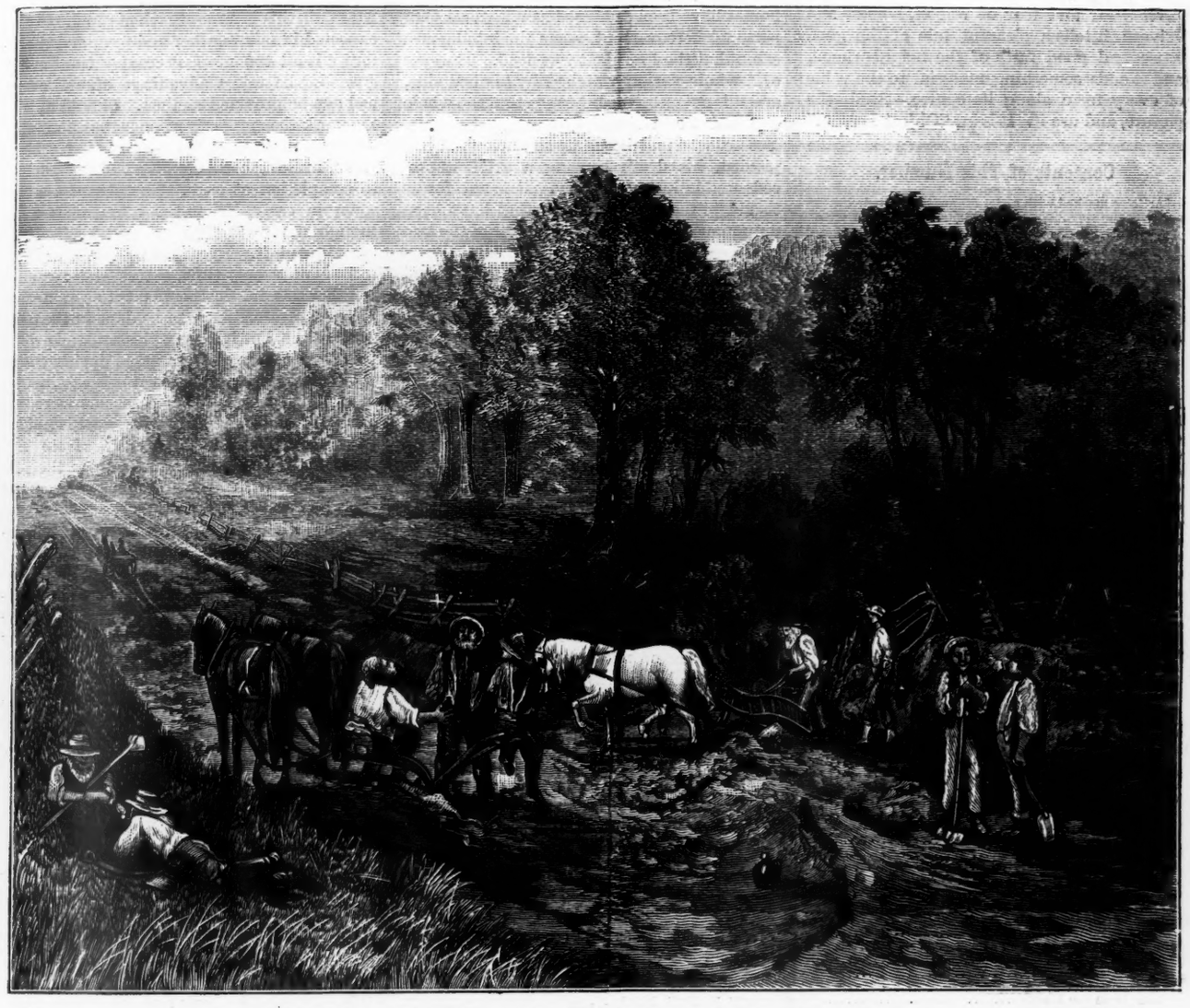

"WORKING OUT THE ROAD TAX."—*Engraved for the American Agriculturist.*

Our readers are here treated to a scene on which, or the like of which, they must have looked many a time. Mr. A. M. Fuller, a merchant of Meadville, Pa., a gentleman of true public spirit, in his travels about his own region, as he looked after his large dairy interests, felt the evil of the ways he travelled, and saw some cause of its continuance. At his instance, A. G. Richmond, Esq., a young lawyer of his town, painted the above picture on canvas, and Prof. A. B. Hyde, of Alleghany College, kindly sent us a photograph from which this is engraved. It is no fancy sketch. The locality can be identified and the men are fairly average citizens, only a little "mucilated" to make identity obscure.—The first sketch contained a colt, which aggravated the case by being always in the way, and by its dam needing frequent rest for his benefit. The earnest old man, and the tall boy at the scraper are stated to be from Vermont; the rest are "Pennamites." This picture is not a caricature; it is a simple holding of the mirror up to nature. Study it. Prof. Hyde writes: "How we proceed here, is about as follows. The farmers of the district are notified to appear at a certain date for duty. One or two teams and a dozen men gather to the portion of the road to be repaired. As the Road District is a simple unit of Democracy, each man is as good as a "boss," and is mostly exempt from labor; the boys flourish the spade and hoe, but the horses are the laboring class. As for our "earthworks," the deep, narrow side ditches are cut still deeper; the large stones and small boulders along the footpaths are rolled into the center of the track, and the finish given with a top-dressing of sod. Logs, rails, etc., are then laid on the flanks to compel travel on the center. Should the process be interrupted (which often happens), the road is left variegated with piles of dirt which sometimes lie unspread for the season, reminding the traveller "rolling through an unfriendly world," that something has been done towards improvement? Probably we can all see that this is a good way not to do it.... Is there not a better way? A few citizens, our best farmers, are proposing to use the same good and strong sense on the roads as they use on a farm. A letter from the original McAdam, to a farmer in Central New York, was long kept, in which he says: "Remember that in your region, if you keep stones out and water off, you have a road." Simple advice, yet needing wit to follow it! Two ideas are growing in the minds of our people, both tending to reform. One is to find the man who has plain engineering wit, adequate

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to road making. In some districts one needs to light a lamp at noon to find him, but, when found, he is a treasure. He is to be put and kept in charge of the roads. The other is to make the tax a cash business. The assessments being payable in cash, the overseer can employ whom he chooses, and, if he employs the residents of his district, they *work* better on a cash basis. A good road saves wear and tear of wagon, horses, and driver; it tells a pleasant tale of the good sense, and good faith of the neighborhood, and it adds something material to the value of every farm along its course.—Study the picture, and use it. It is an "Object Lesson."

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AMERICAN AGRICULTURIST.

NEW YORK, NOVEMBER, 1881.

James A. Garfield.

Since the *American Agriculturist* made its last visit to the homes of its readers, those homes have been saddened as with a sense of personal bereavement, when the intelligence came that the President was dead. The eyes of a whole nation watched by his bed side, and it is not extravagant to say that the whole civilized world listened to his pulse-beats. Yet he, who had borne up so bravely, at last yielded, his death causing a grief unprecedented in human history. It is not for us to add to the many eulogies that have been pronounced. All that was mortal of the late President has been laid away in his beloved State; the emblems of mourning that draped the country from shore to shore have been removed, and the people now turn their thoughts to the affairs of busy life. In reading the eulogies that his death occasioned, we find accounts of his early struggles for an education; of his scholarly acquirements, of his thoroughness as a teacher, his grasp of public questions as a legislator, but we find little or no reference to the fact, which should especially be brought to the notice of our readers, that he was a *farmer*. He not only held agriculture in high esteem, but, so far as he was able, practised it. We are told that in those long dreary summer days at the White House, and later, while his life was ebbing away at the sea-side, his thoughts were of his farm at Mentor, and his day dreams were of rural scenes at that Ohio home, which he was never to see again. How much his thoughts were upon agriculture is shown by the prominent place he gave it in his inaugural address. He there said: "The farms of the United States afford homes and employment for more than one-half our people, and furnish much the largest part of all our exports. As the government lights our coast for the protection of mariners and the benefit of commerce, so it should give the tillers of the soil the lights of practical science and experience."—It would be difficult to express a warmer sympathy for, or a higher appreciation of, the claims of agriculture.

One lesson of the late President's life to every young man is, that in this country, humble birth and occupation are no barriers to the highest position. That he rose to eminence through his own exertions does not explain the universal grief at his death, for others have done that, and yet not been buried with such sincere mourning. The cause of this is found in the high esteem in which he held the family relation; it was as son, husband, and father, rather than as President, that his death touched so many people. When he had, by taking the oath, accepted the highest office the people could give, his first thought was of the little white-haired mother, who had helped him to reach the position where he then stood, and turning from the rest of the world, he kissed her wrinkled cheek—acknowledging that whatever else he might be, he was still her son. It was the glimpses that we have been allowed to have of his home life, his patience and cheerfulness when in pain, his courage in the face of death that so turned human hearts to him in his affliction.

Suggestions of and for the Season.

It is difficult to tell just what kind of weather November will bring. We are likely to have hard frosts, some snow storms, and a foretaste of the coming winter. The fine, mellow weather of October often lingers, and a long Indian Summer may allow the doing of a large amount of out-door work. All in all, this is a month when much may be expected in fair weather and foul, and therefore it is all the more necessary that every good day be taken advantage of, and every bad one be provided against. Should any of the work that properly belongs to last month, be still unfinished, such as sowing winter grain, husking corn, etc., it should be pushed to completion at once. The wheat that is sown in early November often does well, though late sowing has nothing in itself to recommend it. Rye may be sown so late, that there is only time, before the freezing weather sets in, for the plant to get a fair start. Corn-husking can be done in the barn at any time, but it is more pleasant and profitable to do this work in the field during warm weather. Much grain is thrashed in this month, partly because the thrashers were not earlier available, and the work now is not so pressing. Some farmers suffer from not speaking for the thrashers early in the season. Those with large grain farms may have their own machine, and thus be independent of those who go from farm to farm. Farmers with only a small amount of grain, may do their own thrashing by hand, and thus make good use of stormy days. The importance of planning for work for days when the help must be in-doors, should be more fully appreciated. There are many things about a farm that may then be done in-doors with great advantage. There are tools to be mended, painted, and put in good trim for the time when they will be needed; harnesses to be cleaned and oiled; grain to be fanned; wood to be split, and many other jobs that can be done as well when it rains, as during the brightest sunshine. Figure 1 shows a tool sled or "boat" that is very handy on the farm, and is but one of the many home-made implements that may be constructed in the shop during stormy weather. Heavy hard-wood planks serve for the bottom, to which the low sides are firmly fastened.

The harvesting of the roots is largely done this month. The beets and mangels are protected from the light, early frosts by their broad leaves, but so soon as the leaves drop down, growth ceases, and the roots should be dug. Much labor can be saved in removing the roots from the soil by the use of a subsoil plow, running it close to one side of the row, thus loosening the roots, when they can be pulled unbroken and with ease. Horse labor should be used upon the farm wherever it is available. The pitting of the roots was treated last month. There is danger in making the heaps too large. Trenches four feet wide and two feet deep, are of a suitable size, and there is no heating if thorough ventilation is provided for. The covering of earth should be made firm, and pressed smooth upon the outside that it will shed the rain. The tops of the roots make good feed for cows, and especially the young stock. If stacked in large heaps they soon decay and become worthless, and when thinly spread they become dried and valueless. A moderately thick layer of them spread in some

shady place is the best for keeping them fresh and palatable. This is a time when the weeds—if left to grow—will have gone to seed, and all such should be gathered and burned—not thrown on the manure or compost heap. All young weeds, sods, and refuse from the root field, etc., may go into, and add value to, the compost heap. If there is a muck bed at hand, a quantity of muck may be

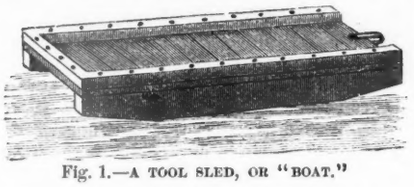


Fig. 1.—A TOOL SLED, OR "BOAT."

taken out, and placed in a dry place to undergo the "weathering" necessary to fit it for a fertilizer to the soil, or better still, as an absorbent of liquid manure in the stable and feeding shed. If muck is used in the farm economy, there should be a muck heap, that is, a supply that has been subjected for a season to the action of the elements, before it is used. Should the season continue to be dry, draining of swamp lands will be in order. It is a serious error to dig the ditches so narrow as is done in many cases. A wide ditch, with very sloping edges, is the only kind that will last for any great length of time. It is far better to do thoroughly what is done, and leave the work to be taken up the next season.

Notes on Farm Stock.

It is nearly time to consider the winter feeding of farm stock, at least this is the month to make all the plans and get everything in order for the cold season that will soon be at hand. The question of winter feeding in all its bearings is an important one. There is a constant outgo of fodder, and the problem is to so govern the expenditure that the best returns may be obtained. Not only must the animals be "kept," but they must be *kept well*, that the opening of the new year of pasturage may not find them run down, or as it is termed "spring poor." Aside from bringing the stock through in a

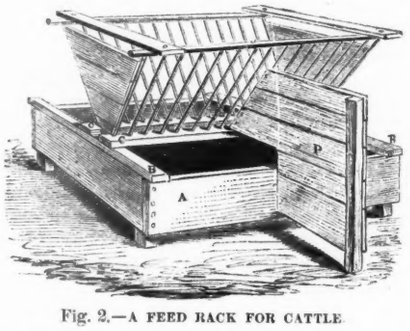


Fig. 2.—A FEED RACK FOR CATTLE.

healthy and vigorous condition, there is the manure to be considered. This should be a good dividend upon the winter's outlay, and therefore it should have a place in the plans for winter feeding. It cannot be too strongly urged, that the best manure is made under cover. The same system which gives the best protection and care to the animals will insure the most satisfactory returns in the manure from them. *Feeding for manure* is more and more to be a leading factor in the winter keeping of farm animals. A plenty of the best feed, a free supply of pure water, and warm quarters, are three essentials in profitable winter farming. This does not mean that the animals shall be in the stalls and stables all the time, but it does preclude that out-of-door, straw-stack feeding when the animals must stand in unprotected, shivering groups the whole night through. Sheds—and good ones—will pay for themselves in the better manure that will be made in them—not to mention the economy in food for the animals thus protected. Figure 2 shows a form of feed rack for cattle that are fed loose under sheds. It is portable, requires but little skill to make it, and is an economical method of placing the fodder before the animals. The lower part, *A*, is a box six feet square, and 20 inches high, with pieces of scantling in the corners which serve as feet. Two pieces of scantling, *B*, *B*, across the ends of the top support the cross-bars, *C*, *C*, which make the bottom of the rack. Hard-wood should be used for the rounds. A partition, *P*, is put through the middle of the rack, when four animals will eat without disturbing each other. Winter dairying is profitable business in many localities, but it needs a careful and thoughtful hand to take charge of the work. Very much depends upon regularity of milking, feeding, and all work about the stables. Work horses need the best of care, and even those that are idle during the winter will suffer from lack of attention. They should have a run in the yard, but any violent exercise upon the frozen and slippery ground may cause lasting injuries. Colts during their first winter need special attention, as they are, or should be, growing rapidly, and the colt is father to the horse. If it is pinched now, the stunted growth will diminish its value during its whole lifetime. Ewes that are to drop early lambs should be by themselves, and receive an abundance of good, nutritious food and pure water. A convenient bin for holding a ready supply of grain for the farm stock is shown in figure 3. The two top boards in front are hinged and fastened up by hooks at the end; they may be let down as desired. One section of the double bin is shown closed, and the other open with the front let down, making it easy to remove the grain. The matter of the winter care of poultry is treated elsewhere at length, in a separate article.

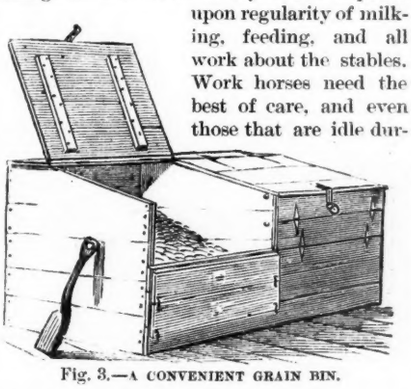


Fig. 3.—A CONVENIENT GRAIN BIN.

Notes on Orchard and Garden Work.

So gradual is the approach of winter, that frequently the work which naturally belongs to the open, pleasant weather of October, may be carried on well into November. It should be remembered that spring with us is short, and the amount of work is so great that it is the busiest season of the year. A late autumn may be made to greatly relieve the pressure of spring work, by allowing many things to be done well in advance. This is a time when a definite plan for the next season should be matured in all the departments of the orchard and garden.

Orchard and Nursery.

Trees planted this fall should have earth drawn up around them, making a mound 12 to 15 inches in hight. It should be of solid, clean earth, free from all sods, weeds, etc., or else it will furnish a winter home for mice. The mound thus made serves a double purpose of a support to the young tree against the winds of winter, and prevents mice from gnawing the tree. Rabbits can do much harm to a young orchard. When the trees are few they can be protected by bands of cloth, or even tarred paper. These pests have a distaste for meat, and may be kept away from the trees by rubbing them with flesh or smearing the trunks with blood. Boys can catch many of them by trapping, and afford what is to many an acceptable variety for the table. If the weather remains mild, and the ground open, trees may be still planted. South of the 40th parallel planting may be done during the greater part of the winter. Planting in the fall relieves the pressure of spring work. If the ground is frozen, rather than place the roots among frozen clods, it is better to heel-in the trees until spring. The labels upon the trees should be looked to. Never leave the labels on the trees that are placed there in the nursery. They are usually wired on tightly, and are only intended to identify the trees when received, and not for permanent use. Unless labels are well made and firmly fastened to the trees, they are soon lost. The old kind made of pine, and marked with a rather hard lead pencil upon a fresh coat of white lead paint is cheap and durable. Some prefer zinc strips. For orchards it is best to have a chart, with each tree and its kind recorded, and not trust at all to labels. Cions may be cut as soon as the leaves fall, packed in sawdust or sand, and put in a cool cellar until needed for grafting. Care should be taken in selecting the cions, cutting them only from thrifty and healthy trees. It is better to buy cions than to use any poor ones. Root grafting is done during the winter, and therefore the stocks should be in a convenient place. They are taken from the ground before it freezes, assorted, tied in bundles, and then placed in boxes with the roots covered with soil and put in a cellar. The seeds of trees for spring planting are best preserved by mixing them with sand and placing the boxes in a cool and dry place out of the way of the mice. The fences and gates of the orchard and nursery should be in good order at all times, and especially at this season, when a stray animal may get in and do serious damage.

The Fruit Garden.

Blackberries and raspberries may be planted as late as the weather allows. These plants start into growth so early that it is better to set them in autumn. When new plants are desired they can be readily raised from root cuttings. Roots are removed from old plants by cutting down near the base with a spade, and taking up the severed roots. These are cut up into pieces three inches long, and placed in boxes of earth, and put in a cool cellar. Or they may be buried outside below the reach of frost, where water will not stand. Root cuttings, kept

cool and yet not frozen, will, during the winter, make preparations for growth. One or more buds will be formed on each piece. The ends of the cuttings will have callused, and often more or less roots have formed; they are then to be set in the open ground very early in spring. Tender raspberries should be covered this month. The canes are bent down in the direction of the rows and covered with a few inches of earth. Currant cuttings are made from the present year's growth, removed from the bushes at the time of pruning, and should be about six inches long; these may be set in the open ground and covered with litter, or in boxes of soil placed in the cellar. The grape vines should be pruned as soon as leaves fall. Vines set this spring should have only one or two shoots, according to their vigor. There is no rule for pruning an old vine—enough buds should be left to produce a sufficient number of shoots for leaves and fruit. Grape cuttings are made from the branches pruned off, and should have two or three buds each; tie them in bundles carefully, label and pack in earth in the cellar. Many sorts, as the Concord, will grow from such cuttings planted in the open ground in spring; those with harder wood require special treatment. The Delaware, for example, requires the bundles of cuttings to be puddled in thin mud for half their lower length, then set *upside down* in a cold frame with fine earth sprinkled among the bundles, and covered to the depth of four inches. Before freezing weather sets in, the cold frame is filled up with straw or forest leaves, and covered with boards. The covering is removed in spring, and sashes placed on the frame, when roots will start from the cuttings and they will then be ready to be set out. The covering to the strawberry beds should be put on as soon as the ground begins to freeze. Straw or leaves may be used for this purpose, placed thickly between the plants, but lightly directly over them to prevent injury by smothering.

The Kitchen and Market Garden.

So soon as a crop is removed, the ground should be cleared of all rubbish, manured, and plowed or spaded. It is not best to harrow, but leave the soil with the rough surface from the plow. If the soil is very stiff it can be improved in texture by throwing it up in ridges to more thoroughly expose it to the action of the frosts. In short, do whatever the weather will now permit to improve the garden, and aid in the hurry of spring. The sashes should not be put upon the cold frames until there is danger of freezing the plants. The cold frames are only for protection, and not for stimulating the growth of the plants within. A circulation of air is important, and the sashes should be raised for this purpose on all warm days. Cellars in which roots are stored need to be kept cool, or the roots will shrivel and lose their freshness. If put in barrels and covered with sand, they are preserved more nearly like those in pits—the best method of keeping roots fresh and good. The celery should be stored before the ground freezes; a trench may be dug in a dry place, deep enough to bring the tops on a level with the soil. Set the plants in closely, side by side, with no earth between, and cover first with some straw, and add more covering as the cold increases. Boards may be put over the straw. A small amount of celery may be stored in earth in the cellar. Some of the parsnips for present use may be dug now, and stored in sand in the cellar, but as freezing improves this vegetable, the most of the roots may remain in the ground until needed, or dug in midwinter during the "January thaw." Cabbages are best stored in trenches. Pull and place heads down in rows, and two furrows turned upon them will do the bulk of the work. A common method is to dig a trench in a dry place, and set the cabbages in it heads down, and close together. As the weather gets cold put on straw, afterwards more straw and boards over the whole. Carrots and beets should be dug before they are injured by frosts, and stored in the same manner as given for other roots. Turnips should be harvested next after the beets, and carrots being less injured by freezing.

The Flower Garden and Lawn.

The grass of the lawn should be left uncut for some time before the ground freezes, that it may have a sufficient coat for winter protection. The fallen leaves and all litter should be raked up and used in the stable, or as a protection to tender plants; it both improves the looks of the grounds and furnishes a valuable litter, or covering. Evergreens show now to the best advantage, and a diversity of form and shades of green are very pleasing. These trees and shrubs should be selected and planted in groups, etc., largely for their winter effect. New beds and paths may be laid out now, and much work of this kind done that will add to the permanent value of the grounds, and also aid in the busy days of spring.

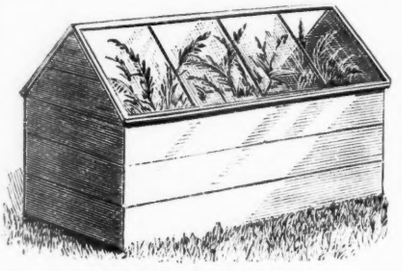
Greenhouse and Window Plants.

Plants that come in from the garden should have a period of rest. Pots of bulbs should be placed in a dark cool cellar for several weeks to form good strong roots. If there is no suitable cellar, place the pots in a cold-frame or pit, and cover them with coal ashes. The object is to keep the bulb warm enough to emit roots, and not so warm that the leaves and flower buds will start. Watering is one of the most important labors for the Greenhouse. A good thorough wetting is better than keeping the surface, and that only, moist by frequent pouring over of a little water. The water should not be much colder than the air of the room, at best not almost ice cold, as is too often the case. Hanging baskets require a plenty of light and air. They need abundant water, and frequent turning if the light comes strongly from one side. No one with house plants should be without some good climbers, such as the English and the so-called Parlor or German Ivy. Look out for insects, and kill them before they have done any serious harm.

The "Wampapin" Lily.—Various writers have discussed in the "Gardener's Chronicle" (Eng.) the identity of a water lily with the above name. Some have supposed it to be the common Yellow Water Lily, or Spatterdock (*Nuphar*), but it appears to be settled that it is Nelumbo (*Nelumbium luteum*). We have known this gigantic lily in many different localities, but never heard the name "Wampapin" applied to it. A very common name is Water Chinquapin, the seeds being in size and shape much like the Chinquapin nut. May not the name Chinquapin, in crossing the ocean, have somehow become transformed into "Wampapin?"

A Tasmanian Fern Case.

A subscriber in Tasmania, who signs himself as "Amateur," but also gives his real name and residence, at Hobart, sends a sketch of his Fern Case. He takes a common box, without top, and removes a board or two from each side. He then saws a triangular piece from both sides of each end of the box, so that the ends taper to a point. A strip of wood is then nailed in from one point to the other, and a strip is also nailed on each side of the box to form a ledge for the glass to rest upon. Three or four panes of glass of the required size are placed in position, as shown in the engraving made from the clever sketch sent by our correspondent. To complete the Fernery it is to be painted of some unobtrusive color. Though our friend does not say so, we assume that he uses his fern-



A TASMANIAN FERN CASE.

ery for plants in pots; if they are to be planted out, then the box would need a lining of zinc or galvanized iron to prevent the moisture of the soil from warping the wood. The chief use of such a fernery is to keep the plants surrounded by a moist atmosphere, which the contrivance here described will do as well as a more expensive one.

Ensilaging Night Soil.

Captain St. John, of the English navy, in describing some of his excursions for shooting snipe, during winter, in the rice fields on the Canton River, mentions a method of preserving night-soil in pits, which appears to have escaped the attention of agricultural travellers. He says: "Chinamen resemble their neighbors, the Japanese, in one thing, in that they never waste manure of any kind; that which is chiefly prized being from their own houses or tubs outside their doors. This is collected in great pits in the fields, and covered over with a thin coating of mud, which hardens in the sun, and acts as the crust to a pie. It preserves the precious article underneath from the sun and rain, both of which deteriorate the strength of this most potent manure, that is so grievously wasted in our own country."—[The tight covering probably hinders or perhaps prevents the hurtful action of the microscopic organisms, which, under ordinary circumstances, occasion wasteful decay.—ED.] It appears that inexperienced foreigners, when shooting over the bare rice fields, are apt to attempt, for once, to walk across these smooth, tempting pieces of dry mud. Their experiences, when the crust of the manure pit breaks, may be imagined more readily than they can be described. S.

Rotation of Crops.

BY DR. MANLY MILES, DIRECTOR OF EXPERIMENTS, "HOUGHTON FARM," N. Y.

In a well planned system of farming, the subject of crop rotations should be carefully considered, as one of the essential elements of success in its highest and best sense. It seems to be the prevailing opinion that the alternation of crops, in systematic order, is a modern invention that was gradually developed as a direct result of the applications of science to the art of agriculture. The early writers on agriculture, even from the times of the Greeks and Romans, have, however, quite uniformly urged the advantages of a succession of crops from the teachings of experience. They were satisfied that a variety of crops grown in succession, all other conditions being equal, would give a greater aggregate yield than could otherwise be obtained. The reasons for the success of the system could not, it is true, be given, but practical men were fully agreed in urging its importance, and many systems of rotation, more or less perfect, were planned, some of which became the prevailing rule of farm practice in particular localities. That these practical rules of alternating crops of different habits and modes of growth are based on correct, but not fully explained, principles, has been shown by direct experiment.

At Rothamsted, where many lines of experimental investigation have been so successfully conducted for many years, Drs. Lawes and Gilbert obtained nearly as much wheat in eight crops, alternated with eight crops of beans, as in sixteen crops of wheat grown consecutively, without manure, in another field; and also nearly as much wheat as in eight crops alternated with bare fallow. When it is remembered that Nitrogen, as a fertilizer, gave the best results with wheat in the experiments with different fertilizers; and that the crops of beans alternated with the wheat, drew from the soil something like twice as much Nitrogen, each year, as a crop of wheat on the plats where it was continuously grown, the results are not only remarkable, but of great practical interest. The yield of wheat each year was, in fact, nearly doubled by its alternation with a crop that made a draft upon the soil of more than twice as much Nitrogen, the very element of fertility that gave the best results in its own growth. Experiments like this are valuable, as they show conclusively that what are called the exhausting effects of a crop are not to be measured exclusively by what is removed from the soil.

Many theories have been advanced to explain the well-established influence of one crop upon the growth of another; but as the laws of plant growth became better known, and greater exactness in the means of investigation were discovered, they were found insufficient to account for all the observed facts, and even at the present time a complete and satisfactory theory of rotations is wanting. When it was observed that the yield of a grain crop was diminished, when grown continuously on the same land for a number of years, and that a marked increase of the crop was obtained after some other crop had been grown, the idea that the soil was "tired" so far as the particular crop was concerned, and needed "resting," became the accepted explanation. In 1566 Camillo Tarello presented, to the Senate of Venice, a plan of an improved system of agriculture, in which he urged the importance of better cultivation of the soil; an increase of cattle food for a better supply of manure; and the "resting" of the soil for grain crops by alternating them with the grasses and clover. The next theory worthy of particular notice was presented by De Candolle, who assumed that plants threw off excretions from their roots that poisoned the soil for the same species of plant, but served as nutritive material for other plants. This excretory theory, although for the time a popular one, was finally disproved, and Liebig's mineral theory, as it was called, was quite generally accepted as giving the best explanation of the known facts of crop rotations. According to this theory, plants derived their mineral, or ash constituents, from the soil, and obtained from the atmosphere their supply of Carbon and Nitrogen. As crops differed in their ash constituents, it was assumed that their demands upon the soil would differ, and that this largely explained the advantages of rotations. The assumed source of Nitrogen was, however, a more important factor, and crops were classified as exhausting when their mineral constituents predominated, and as restorative when they contained a larger proportion of Nitrogen, which they were supposed to draw from the atmosphere by means of their broader leaves which characterized them. The cereals, including our wheat, oats, and barley, were thus placed in the group of exhausting crops; while clover and other leguminous plants, were placed in the restorative group.

As a full crop of clover removes from an acre of soil more of the mineral or ash constituents than a full crop of wheat or oats, it is difficult to understand why, in accordance with this theory, the wheat and oats should be classed as exhausting crops, and the clover and its allies as restorative crops, if their mineral constituents are alone considered. Moreover, in regard to the source of the Nitrogen of what are called restorative crops, like clover and beans, there seems to be evidence that a smaller proportion is drawn from the atmosphere than was formerly supposed, and that the soil furnishes the most important supply. From investigations at Rothamsted, and also in France and Germany, it seems probable that the combined Nitrogen of the air available for plant growth would not exceed eight or ten pounds per acre in the year in Western Europe. At Rothamsted, however, the wheat on the unmanured plots gave for 32 years an average yield of Nitrogen of 20.7 lbs. per acre; barley without manure for 24 years yielded, on the average, 18.3 lbs. of Nitrogen per acre; and beans, for 24 years, gave an average yield of 31.3 lbs. of Nitrogen per acre when unmanured, and 45.5 lbs. per acre when dressed with mineral manures containing no Nitrogen. A plot of clover grown for 27 years in succession on garden soil, was found to yield, on the average, at the rate of nearly two hundred pounds of Nitrogen per acre each year. As but 8 to 10 lbs. of Nitrogen per acre could be obtained from the atmosphere by these crops; and, as direct experiments had proved that nearly, if not quite an equal amount of Nitrogen per acre was wasted by drainage at Rothamsted, it will be seen that these crops must have obtained from the soil a very large proportion of their Nitrogen. The grain crops, it will be seen, removed from the soil but a comparatively small amount of Nitrogen, and yet from the experiments with fertilizers it had been shown that nitrogenous manures had a marked influence on their growth.

On the other hand, the leguminous crops, like clover and beans, that yielded a much larger amount of Nitrogen per acre, were not to the same extent benefited by nitrogenous manures; but gave a marked increase in their yield of Nitrogen on the application of purely mineral manures. The influence of a highly nitrogenous clover crop upon the grain crop which follows it, so often noticed by farmers, was well shown at Rothamsted in the experiments with barley, and particular attention should be given to the amounts of Nitrogen drawn from the soil by each of these crops. In 1873 a field that had grown six successive grain crops, was divided into two parts; on the one a crop of barley was grown, and on the other clover. The yield of barley gave 37.3 lbs. of Nitrogen per acre; and the clover, of which three cuttings were made, yielded 151.3 lbs. of Nitrogen per acre.

The next year barley was grown on the whole field, and its yield of Nitrogen was 39.1 lbs. per acre after the barley of the preceding year; and 69.4 lbs. of Nitrogen per acre where the clover had been grown; that is to say, the Nitrogen yielded by the barley was "30.3 lbs. per acre more, after the removal of 151.3 lbs. in clover, than after the removal of only 37.3 lbs. in barley."

In regard to this remarkable result, Dr. Gilbert says: "It is quite consistent with agricultural experience that the growth and removal of a highly nitrogenous leguminous crop should leave the land in high condition for the growth of a gramineous corn (grain) crop, which characteristically requires nitrogenous manuring; and the determination of Nitrogen in numerous samples of the soil taken from the two separate portions of the field, after the removal of the barley, and the clover, respectively, concurred in showing considerably more Nitrogen, especially in the first 9 inches of depth, in the samples from the portion where the clover had been grown, than in those from the portion whence the barley had been taken. Here then, the surface soil, at any rate, had been considerably enriched in Nitrogen by the growth and removal of a very highly nitrogenous crop."

From the high price and great value of nitrogenous manures, and the pertinent suggestiveness of facts like these, would it not be best for farmers to ponder well the extent to which these crops may be profitably grown, as a means of improving the condition of the soil, and thus increasing the yield of other crops that are not as gross feeders.

Pond Mud.—There have been a number of inquiries of late, as to the value of pond mud, and, if of worth as a fertilizer, the best means of making it available. Pond mud is a very indifferent compound. Some of it is rich in vegetable matters, and when properly composted with barn-yard manure, or with lime, makes a valuable fertilizer. Other mud from the bottom of ponds, is not worth the time required to get it ready for the land needing manure. In general, if the mud is made of decayed and decaying vegetable matter, and can be reached with little expense, it will pay to get it out, after which it should be composted as above stated.

The Great Grain Speculation, or "Craze," of 1881.

Never before, in this country, or in any other, has there been anything at all comparable to the present speculation, rather "Gambling," in Wheat, Corn, and Oats, and in Hog Products. This gambling spirit has taken possesion of large masses of people, and extends from the great dealers who handle or bet on tens of millions of bushels, down through all ranks, to the hotel waiter who puts up his week's wages as a "margin" on the purchase of a single hundred bushels.—The methods of speculation we described in our September number (page 378). One explanation more:

Suppose the present price of wheat be quoted at $1.40 per bushel. The speculator, guessing that prices will run higher, goes to a broker and offers to buy 1,000 bushels, next month, at $1.42, and deposits with him a "margin" of $50, or 5 cents a bushel, which is the regular "margin" on wheat; 3 cents on corn and oats. As long as wheat keeps above $1.40, nothing is said; but if it falls below, the broker calls for as much more "margin" as the price falls; he, or the seller through him, must always have in hand 5 cents per bushel more than the current rate. In thousands of cases the buyer uses up all his money in "margins," and not being able to put up more, he loses all he has previously invested. In this way multitudes of men who have, outside of their regular business, speculated in these markets, or in a similar way in the Stock Markets, have been reduced almost, often quite, to bankruptcy.

When the settling day comes there is no actual delivery of the grain, in most cases, but the buyer and seller settle the difference between the price then current and the previously agreed price. All this is usually done through "brokers," who charge a percentage for transacting the business.

So great is the present rage of this kind of speculation, that on some days sales reach tens of millions of bushels. On one day (Oct. 1) the "deliveries" of grain, on previous contracts, were reported at **32,000,000 bushels** in Chicago alone!

This speculation has demoralized the whole trade. The "bulls" have run up prices so high as to nearly stop exports.—On Oct. 1 the "visible supply" of wheat, that is, wheat in the elevators and storehouses and in transit, amounted to 41,203,648 bushels. Last year at the same time there were only 37,099,745 bushels, showing more available wheat now than one year ago, though prices are fully 40 per cent higher. Nearly the same of corn, the "visible supply" being nearer 27,649,173 bushels; last year 28,289,298 bushels.

The increased price, produced largely by speculation, is beneficial to all those producers able to get their grain to market while these high rates prevail. But it is deranging almost all other business very greatly. Money is drawn in immense sums, from the banks and from all other legitimate business, to supply the "margins," or to carry the stocks actually purchased and held by speculators.

Exporting being at a stand still, the inflow of foreign money we should have, is nearly stopped, and European buyers are seeking cheaper supplies in all other parts of the world.

The high speculative prices are greatly diminishing the consumption, and this alone must, ere long, bring about a decline. The laboring classes are compelled to pay much higher rates for their daily food, the advances mainly going into the hands of the speculators. Labor must therefore advance, and this in turn increases the cost of manufactures and of all products of labor.

Of course every speculator, large and small, *expects* to sell out before any great decline shall come, and the shrewder ones will do so, leaving the great mass to bear the brunt of the loss.

Clear-headed business men now greatly fear that in the future, perhaps the very near future, a crash will come that will derange the whole business of the country.

To the oft-repeated question from our readers: "Shall we sell now, or hold on?" we can only answer, that a good general rule is to sell whenever ready; get the money; pay up debts, and keep in as snug and safe a condition, as possible. To sell, or hold on for change of prices, is to speculate on great uncertainty. One half of the speculators, who make a business of studying the prospects—viz., the sellers for future delivery—believe prices will fall. The other half of them—the buyers—believe grain, etc., will go higher, from natural causes, or that they can "corner" the supplies, and put up the rates. The outlook would seem to be that, while speculative influences may sustain or even advance prices temporarily, there can hardly be a demand for all the grain, etc. Consumers both at home and abroad will necessarily curtail their purchases very materially, and these high rates will call out supplies from other sources not usually drawn upon.

The Great Atlanta Exposition.

This exhibition opened October 5, far more complete, and on a much larger scale, than its most sanguine friends hoped for less than three months ago. The extent and variety of products, natural and manufactured, makes this exhibition well worthy of a visit by every one who can possibly go there, from any part of our country. It marks an era in the advancement of our Southern States in a new industrial and commercial career. It will bring together the people of all sections in harmonious contact, and it is hardly too much to expect that it will go very far to obliterate finally the last remaining prejudices and ill feelings.

Speculating on Misfortune.—One would think that the people of a portion of Michigan had suffered sufficiently by fires without the added misery of a gang of land speculators, who are ready to take advantage of their distress. The Detroit and other Michigan papers state that many of these unfortunates, who have lost everything but their lives, in their present distracted and dazed condition, are ready to part with their lands for a little ready money. Strange as it may seem, there are already speculators on the ground, ready to drive hard bargains with these unfortunates. These papers urge the people to hold on to their lands, saying very truly if these are worth anything to others, they are worth still more to their owners. After the present shock is over, those who sell will be looking around to purchase other lands, and we do these people a service when we repeat the advice of the Michigan journals, not to sell their land unless the price obtained will buy as good a tract elsewhere. Terrible as has been the devastation, the land is still there, and to move from a familiar locality to a strange one, is merely to add another misfortune to the list of calamities.

The Spaying of Cows.—Every few years there is a revival of the subject of spaying—or the removal of the ovaries from the cow. Recently several letters have been received asking us to give directions for performing the operation. There is a question which should precede this, which is: is it worth while to perform the operation at all? The operation is attended by risks, and should only be performed by a skillful hand. Every now and then an article appears, not in an agricultural journal, but in some miscellaneous paper, setting forth the great advantages that follow the spaying of a heifer after her first calf. That good results have followed the operation is admitted, and standard works upon veterinary surgery describe the method of performing it. In view of letters of inquiry, we consulted the work by Dr. Steel, "Diseases of the Ox, or Bovine Pathology"—mentioned elsewhere, to learn what were the most recent views upon this subject. The author, after giving the claims in favor of spaying, such as continued flow of and better quality of milk, etc., sums up by saying: "Nevertheless the operation has not been generally adopted, for some of the above mentioned arguments are of doubtful character. The animals operated upon are not so generally useful, tend too much, in some cases, to the laying on of fat, and altogether not so profitable as the uncastrated females."—In view of the above, from the highest authority, it would seem that the risk is one not to be taken, except for some other reason than the hope of profit. The operation is one of such magnitude that we would not advise an unskilled person to attempt it.

A Manual of Cattle Feeding.—By Henry P. Armsby, Ph.D., Chemist to the Connecticut Agricultural Experiment Station.—The readers of the *American Agriculturist* have been made aware from time to time of the investigations, especially by the German chemists, upon the subject of feeding domestic animals. The work of which the title is given above, presents the whole subject in a connected manner, and is one which may be studied with profit by every one who feeds animals for fattening, for work, or for milk. The general laws of animal nutrition are treated in the first part of the work, describing the processes of digestion, circulation, etc., and the production of flesh, fat, or work. The second part is concerned with the various feeding stuffs, both coarse fodders and the concentrated forms of food. A number of articles are here described that are not in general use with us, though some of these, such as the waste from beet-sugar works, must in time become a common article of food in this country also. In this portion of the work the results of a vast amount of labor are collected and presented, often in tabular form. In the third part the question of feeding, whether for growth, labor, for fattening, or for milk, are treated, and many valuable suggestions will be found on all these subjects. Though the title of the work is "Cattle Feeding," it is not confined to cattle alone, but other domestic animals are considered. To treat of chemical subjects, chemical terms must often be used, but the present work is, as far as may be, divested of technicalities, and there is nothing that may not be comprehended by a person of fair intelligence. Indeed, a young farmer can not make a better investment of his time for reading than in mastering the teachings of this work. While useful as a work of reference to ascertain the relative feeding values of the different foods, and to learn how to combine the rich and the poor for the most economical feeding, still the best use to make of the work is to fully understand the principles taught as well as the results reached. Sent post-paid, by mail, for $2.50.

A Treatise on the Diseases of the Ox.—Being a Manual of Bovine Pathology, by John Henry Steel, M. R. C. V. S., etc. This is a reprint of an English work, the title of which does not give an idea of its full scope. The work is not restricted to the working animal known by that name, but the term includes beef animals generally. It is not intended as a popular hand-book, but is designed for the use of veterinary practitioners and students. It treats of the various diseases to which bovine animals are especially subject, and of the surgical operations they are likely to require, including emasculation and cases of difficulty in the birth of calves. Diseases of the skin, the eye and other special organs are treated in full, and the illustrations are numerous. While intended as a work for the veterinary profession, it is not so technical that others may not consult it with profit. The intelligent cattle breeder, who is beyond the reach of educated veterinary surgeons, may more safely take this work as a guide, than to trust to the ignorant treatment of the road-side "Cow-doctor." Price $6.00.

Tomatoes.—The season of Tomatoes may be somewhat prolonged by pulling up the vines, with the partly ripened fruit and hanging them under cover. A better way, for those who have greenhouses or frames, is to pick the partly ripened fruit, before frost touches it, and place it exposed to the sun under glass. Those who have vines yet uninjured by the frost can, by these methods, have fresh tomatoes for some weeks longer.

To Be Noted.

First.—All **New** subscribers for 1882 (volume 41), now coming in are entered at once on the Mail Books, and receive free the numbers of this year, issued after their subscriptions arrive. This applies to **all** *new* subscribers, whether single or in clubs, or in Premium lists, and will help in collecting names for premiums immediately.

Second.—The large lists of Excellent Premiums announced last month, are open to all persons, everywhere. There is no competition, no uncertainty as to what some unknown party is doing elsewhere to carry off a premium you are aiming for. There will be premium articles for all wishing them. Any one can therefore select the premium most desired, and gather the names required to secure it; **Or,** gather all the names possible, and now, or at ANY time during six months, select premiums corresponding to the number of names sent.

Third.—The premiums will **pay well** for the little time and effort needed to secure them. Look over the list. If any one desires another copy of the Premium Sheet, for himself or friends, send for it, and it will be promptly mailed free.

Fourth.—Run through the Premium Sheet again, and see how many excellent and most desirable things there are:

See "67 per cent," on this page. The Family Bible offered is a beautiful and valuable one. The New $25 *Sewing Machine* is just like, and every way equal to, one of the most popular ones that, until recently, sold very largely for $60 to $70. The Compound Microscope will be a treasure to any one, fully equal to those previously sold for several times the price; and, besides, this one has the interesting and useful Camera Lucida attached. The Watches offered are good, trustworthy timekeeepers. The Silver-Plated Ware is of very superior, durable character. But not to specify further, there are scores of excellent articles, some of which are desired and needed by every one, as the List will show.

Delivered at Your Home, anywhere in the United States.—Attention is called to the fact that a very large number of the articles in the Premium List will be delivered post-paid to any point reached by the United States Mails.

HOLIDAY PRESENTS will soon be in order. Most of our readers can readily secure some desirable Token for a friend, *without cost*, simply by sending forward an early list of subscribers, and selecting a corresponding article from our Premium List.—Those who can not do this, will find in the list a good assortment to purchase from.—Send forward in time to receive them, despite any accident or delay in transportation.

Will It Pay?

Perhaps no other three short words, when placed together, have a wider and more important application. Whatever any one proposes to undertake, in work, in business, or in any course of conduct, the prime question is, Will it Pay? The pay is not confined by any means to mere money profit. Very many transactions that bring large pecuniary returns are, in fact, terribly losing ones. In legitimate works and enterprises, the question of their paying is to be considered in advance, and a man's ability to foresee and calculate all the circumstances that affect profit and loss, and to thus know whether to go ahead or refrain, largely decides his success or failure. This applies no less to farming and kindred labors than to business or commercial pursuits. As between the farmer, and the importer or jobber or manufacturer or merchant in specific lines of trade, the latter classes have but a few leading points to consider, such as the probable demand and supply, while the farmer must not only take these into account, but also all the variations of soil, adaptability of crops, vicissitudes of climate, weather, etc. Hence

To be a successful farmer requires a wider range of knowledge, better reasoning—in short, better trained mental faculties than any of the other callings named above.

This is literally true, and a popular fallacy to the contrary is responsible for the limited success of the mass of farmers, and the low estimate of their calling, not only by others but by themselves and by their sons and daughters.

We are not arguing that every farmer should necessarily be highly educated mentally, but we do claim that the more knowledge any farmer acquires, by reading about his business, by study and observation, and the more he trains and develops his thinking and reasoning faculties, the better will he forecast and plan for the future, and the more successful will he be. In this view of the subject, reading and study *will pay the farmer* even more largely than those in most other business pursuits.

Every book or journal he reads brings him something of the thoughts, experiences, and observations of others. These are often of direct practical application to his own work; and if not, they at least increase his general knowledge, stimulate thought, and strengthen his ability to reason well, and indirectly, at least, pay a hundredfold.

The cultivators of the soil far outnumber those in any other pursuit, in this country. Is it not remarkable that, while there are many hundreds of publishing houses, some of great extent, and thousands of book stores, and about ten thousand periodical newspapers and magazines, yet a single publishing house, and a score or so of journals, mostly of very limited circulation, are able to supply nearly all the reading about their own pursuits, yet desired or called for by the great class engaged in soil culture.

Sixty-seven Per Cent—or More.

A Good Joint Stock Company for Every Neighborhood.

The owners of about $800,000,000 are so glad to get Government bonds paying four per cent a year, that these have run up to a premium of $15 or $16 on every $100. Other good securities yielding 5 to 10 per cent are eagerly sought after.

But in the October *American Agriculturist* Supplement, on page 436, there is an opportunity offered for realizing 66⅔ per cent on a small investment, that ought not to be overlooked in any neighborhood in the United States, and it is available in many places in other lands. We refer to it because of its importance outside of any pecuniary gain.

The proposition is, that if any *ten* or more persons form a company, and put in $1.50 each, the Publishers will return the value of their money, by mailing to each one a regular copy of this Journal from now to the end of 1882, and, IN ADDITION, they will supply *One Dollar's* worth of Good Books for each member; that is 66⅔ per cent on all the money contributed. If the company numbers ten, twenty, fifty, or a hundred, there will be from $10 to $100 worth of books supplied. These books can be owned in common—one of the members acting as Secretary or Librarian—and can be passed around until *all* have read each book, and then be kept for future reference. (OR, any one person can gather the names and subscriptions, receive and own the books himself, and loan them at his pleasure.)

If a company consists of, say 25 members, each member will, at an outlay of $1.50, have the paper, and the use of $25 worth of Books perpetually, or until they are worn out.

Such a library should contain one book each on Diseases of Horses, of Cattle, of Sheep, of Swine, and of Poultry, to be referred to whenever any animal in the neighborhood is sick.

This Enterprise is an important matter.—As shown in the previous column, reading *pays* for every cultivator. To say nothing of the reading of the Journal for a year, even a small collection of practical, useful books, for general use in any neighborhood, will have an elevating influence, will stimulate thought and investigation, will make the young as well as old think more highly of a calling that has present before them a literature of its own. It will tend to make better and more successful farmers. In fact, instead of the 67 per cent which we have taken for a text, we believe such a collection of books will pay a thousand per cent, and more.

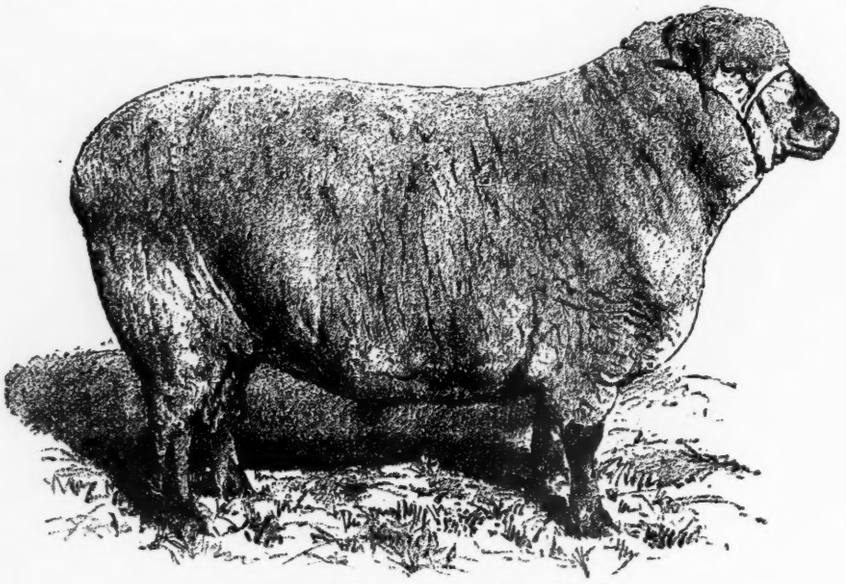
The plan is a practicable one, everywhere. There is hardly a town or Post Office in all the country where ten or more persons can not be found willing to unite in such an enterprise, and in many neighborhoods 20 to 100 or more of them.

It only needs one or two enterprising, public-spirited young men, or others, to take hold of it, and it will be quickly accomplished.

Will not the reader of this start the enterprise? An Illustrated Descriptive Catalogue of 200 or more books to select from, will be sent, post-paid, on receipt of two 3-cent stamps.

The Shropshire Sheep.

The development of great industries in iron and coal in the districts of Shropshire, at the beginning of the century, gave rise to a large and increasing demand for mutton. To meet this demand, the farmers of that part of the country turned their attention to



THE SHROPSHIRE RAM "DUDMASTON HERO."

the raising of mutton sheep. Breeding ewes were sought for from the midland and southern counties, and in time Shropshire became not only a leading sheep-raising region, but also the home of an important breed, the parentage of which it is difficult to state, for the reason that it is derived from and combines a number of the best mutton breeds. The Shropshire is more strictly speaking a cross-breed, in which the "natives" of the districts, the Cotswold, and later the Leicester and Southdown have been combined. On account of this complex admixture of blood, the Shropshire breed is one that varies somewhat in character. The original sheep was horned, black or brown-faced, hardy and free from disease, producing 44 to 56 pounds of mutton to a carcass, and a fleece of two pounds of moderately fine wool. The present Shropshires are without horns, the legs and face dark or spotted with gray, the neck thick, the head well shaped, ears neat, breast broad, back straight, barrel round, and the legs strong. They are easy keepers, hardy, fatten quickly, and at the age of two years give 100 to 120 pounds of excellent flesh. The fleece is longer, heavier, averaging 7 pounds, and more glossy than that of the Southdown. The Shropshire is a valuable sheep for those American farmers who wish to grow both wool and mutton. Its strong constitution is also an important point in favor of this breed. As an instance of the popularity of the Shropshires, it may be stated that "Dudmaston Hero," the first prize ram, shown in the accompanying engraving—made from one given in a recent number of the "Agricultural Gazette" (Eng.), was sold a short time ago for over one thousand dollars.

Look to the Manure.—There is a great deal of manure that goes entirely to waste; but it is of that which is more than half wasted that we wish to speak. Many farmers know the full value of their manure heap, and yet do not realize that their method of feeding is a very extravagant one. Open-yard feeding, especially if the yard is a large one, and much exposed to winds and storms, is too expensive to be practised by any one who loves to see his stock comfortable, or desires to make money by the operation. In the single point of manure, it does not pay. Not only should the animals be well fed under cover for their own sakes, but also for the manure. It must be protected from drenching rains and hot sun, and have a large amount of litter incorporated with it, as well as trodden down completely, that the largest amount of its soluble fertilizing elements may be held. The best barn-yard manure of any kind is made under cover.

Poisoning by Ivy and Sumach.—Treatment.

There is common belief that "Poison Ivy" and "Poison Sumach" are the same plant. While their poisonous effects are much alike, the two plants are very different. The Poison Ivy (*Rhus Toxicodendron*) is a prostrate or climbing vine. It is also known as "Poison Oak" and "Mercury (often Marcury) Vine." It presents two very distincts forms; the most common is a low spreading plant, matting itself along the ground, rambling over stone walls, and climbing upon fence-posts. The other form attaches itself to the trunks of trees, clinging closely by its abundant rootlets, and reaching the tops of the highest trees. Though very different in their habit of growth, no botanical difference is to be found in them, and all the many forms are considered as varieties of the same species. This, while its leaves vary much in shape, has always compound leaves of three leaflets; that is, its leaves are divided into three parts; these parts differ somewhat in size, and especially in outline, some having the margins so deeply cut as to suggest the name of "Poison Oak." As there is no other native vine which has its leaves divided into *three parts*, that is a very safe guide in deciding whether a suspected plant is poisonous or not. The common Virginia Creeper (*Ampelopsis quinquefolia*), is often unjustly suspected as being poisonous. Besides other very marked characters, the leaves of that are *five*-parted. The Ivy is found almost everywhere, in the older States at least; by the road sides, along stone walls, in pastures, on trees at the edges of woods; in fact, it is one of the most generally distributed of all our native plants.

Poison Sumach, on the other hand, does not climb at all, but is always an erect shrub from 6 to 15 feet high, and noticeable for its neat and cleanly habit. In general appearance it is much like an Ailanthus Tree, having long compound leaves, which have all the way from 7 to 13 leaflets. It is always found in moist swampy places, and is distinguished from the several harmless Sumachs by having its flowers and its berries in loose spreading clusters and not close upright ones, as in the harmless species. Both the Poison Ivy and the Poison Sumach, are well known for the qualities indicated by their names — their ability to poison. It is probable that a very small minority of persons are affected by this poison. The Poison Ivy is so abundant throughout the older States that, were the people in general affected by it, farm work would be brought to a stand-still. In employing men to work upon a place where the plant was at one time abundant, we found that not more than one in five was susceptible to the poison, while the others did not hesitate to undertake the task of grubbing it up, and could handle it with impunity. The few are poisoned by coming it direct contact with the plant, while now and then a person is so susceptible to its influence as to be poisoned by going near it, without actually touching it. The shrub, the Poison Sumach, also improperly called "Dogwood," and still more inaccurately "Poison Elder," (the true Dogwood being harmless), is much more virulent than the "Ivy," and is said to affect persons who are not troubled by the vine, and its results are much more obstinate and difficult to cure. In poisoning the effects vary greatly; some are troubled by only a few pustules on the back of the hand and between the fingers, others have an eruption upon the face, arms, and the insides of the legs accompanied by the most intolerable itching. In severe cases, there is a high fever, and we have seen the poison so virulent as to cause the face to swell and quite obliterate all the features, leaving just an opening for the mouth and completely closing the eyes. In such severe cases, medical aid should be called, to reduce the fever by proper treatment. The effects are exceedingly variable in different individuals, and in the great majority they amount to only an eruption annoying for its intense itching.

The Remedies for Poisoning.

The great number of remedies that have been given show that the disease is very variable, and that which is useful in one case, is not so in another. Attention to the general health, cooling the system by saline laxatives, such as Epsom or Rochelle Salts, is a great help. Among the external applications that have been found useful are Lime-water, strong salt and water, or the application of wet salt, a solution of Sugar of Lead, etc. Various astringent lotions are sometimes useful. In some country places a strong decoction of Hemlock boughs, or of Oak leaves, have often given relief. A similar astringent effect is given by a solution of Sulphate of Iron (Copperas) in a teacupful of hot water, applied as hot as

can be borne. The medical journals have recommended first washing the parts in warm water, without soap, and then applying, with a brush or feather, the Tincture of Lobelia. The fluid extract of the Yellow Jassamine (*Gelsemium*) is said to be very efficacious, applied in a similar manner. Another medical journal highly recommends the application of Sweet Spirits of Nitre, first pricking any large pustules that may have formed. The latest remedy we have seen proposed is the common "Ragweed" or "Roman Wormwood," (*Ambrosia artemisiæfolia*) abundant everywhere in fields. It is said that if this be bruised and the juice that is squeezed from it be applied to the poisoned surface, the relief is very marked. From the fact that every neighborhood, in which poisoning is frequent, has several "sure cures," it is probable that there is as much difference in yielding to remedies by poisoned persons, as there is in the susceptibility of persons to the effects of the poison. The better way, in case of poisoning is to at once take some saline purge, with due regard to diet, and apply such remedies as have been found useful in the locality.

Cut-Worms; Natural History, Remedies, etc.

BY PROF. C. E. BESSEY, IOWA AGRICULTURAL COLLEGE.

Every farmer and gardener knows from sad experience something about Cut-worms. Many of the farm crops suffer very materially, and not infrequently whole fields of Indian corn are destroyed by the countless thousands of these dreaded pests. No farmer who has followed the business long enough to be entitled to the name, but has had woeful experiences with Cut-worms, and he has been fortunate indeed, if at times he has not been compelled to abandon a field of corn, giving over the whole to the greedy worms.

And then in the garden, who has not found, morning after morning, that some miserable pest was cutting off his young cabbages, tomatoes, lettuce, and other plants, which were unfortunate enough to suit the taste of this in nowise dainty worm. In the flower garden, petunias, pansies, verbenas, and balsams go down to death before this destroyer. It is no respecter of rank; the patrician of the flower-border falls, as well as the plebeian of the vegetable garden.

By a little foresight we may very greatly reduce, if not entirely prevent the destruction by Cut-worms. This work of destruction can be better understood after studying

The Natural History of Cut-worms.

Although I have thus far spoken of cut-worms as if they were all of one species, the fact is, there are many species having widely different habits. Some live in the ground and barely come to the surface to cut off the young plant, others come out of the ground and attack the plants at the hight of an inch or so, while still others climb trees and eat the tender buds. However, all are sufficiently alike in general appearance, and transformations, to be spoken of as a whole in this article. In general the worms may be described as smooth, greasy looking, black or blackish worms more or less mottled with white. When disturbed they have the habit of curling up to one side for a moment, but they soon try to burrow into the ground again. They possess powerful jaws, which they use in cutting off the plants, afterwards dragging them partly into their hole, where they feast unmolested. After reaching maturity the worms burrow deeply into the ground, where they undergo their transformations, finally appearing as a perfect winged insect. This perfect insect is a night-flying moth or "miller," of an ashen or brownish-gray color. They are given to visiting lighted rooms in the summer, much to the disgust of the occupants. In the latter part of the summer the "millers" lay eggs on or about the plants which they infest, and then die. The eggs soon hatch into very small worms, which immediately begin feeding upon the plants about them. During the fall months the young worms eat and grow, and by winter are about half grown; they then go deeper into the ground, or get under rubbish, and there pass the winter. Upon the return of warm weather in the spring, such of the worms as survived the winter come to the surface, and now having their appetites sharpened by their long fast, they attack whatever comes in their way. If they happen to appear in the clover fields, or the meadows, we seldom notice any bad results, but if they come to the surface where the ground has been cleared of all plants except the few purposely set there, we are immediately made aware of the presence of the enemy through the destruction of our choice plants. Early in the summer the worms attain their full growth, and then burrow deeper into the ground to appear later as a new brood of "millers," and thus the round of life goes on, generation after generation.

Checks and Remedies.

A number of insects are parasitic upon Cut-worms, while still others attack and devour them. A large black Ground-beetle, marked with rows of small copper-colored spots, is very useful, as its larva, or young, follows the worms into their burrows and kills them. Ants, also, when sufficiently numerous, kill many of them. Hand-picking—that is, digging out and killing them, is perhaps the most successful direct method of warring against them, but this is a long, slow process, and besides, we know where to seek them only after the damage has been done.

The method which I have found to be the cheapest and most successful, is the following: As the young worms feed during the autumn upon fall-growing plants of various kinds, it follows that by clearing entirely any piece of ground of weeds and other plants during this time, the worms must starve. In the garden, then, no part must be allowed to become weedy after the crops are removed, for every weed may be nourishing several Cut-worms. As rapidly as crops mature, they should be removed, and the stems and rubbish carted to the compost heap. It may be well to so arrange the rotation of crops that the crop preceding the planting, which is subject to Cut-worm depredations, is one which can be removed early from the ground. After removal of the crop the whole ground should be thoroughly plowed, and if plowed again just before frosts sets in, so much the better. When it is not possible to remove the crops before the close of the season, much good can still be done by clearing off the ground and plowing, for although the young Cut-worms are present in the ground, the late plowing will disarrange their plans for hibernation, and the greater part of them will be killed by the frosts and other hardships of the winter. On the farm the same methods can be successfully applied. If a clover field is to be broken up and planted with corn, the plowing must be done in the fall if young Cut-worms are abundant. Summer fallowing is a most excellent preparation for crops liable to be troubled with Cut-worms, provided that the ground be actually fallow; a fallow field full of weeds is of no avail whatever. In a single sentence, I may say that *clean culture* and *fall plowing* are the secrets of success in dealing with Cut-worms.

A Handy Halter Bridle.

It frequently is necessary to feed the horses when it is not convenient to unharness them, or even remove the bridle. In such cases an arrangement like the one shown in the accompanying engravings is very convenient. The bit, figure 1, is fitted with two snap hooks, fastened to the bit rings by short loops of leather secured by a rivet. These "snaps" fasten into the ring in the nose piece of the bridle, as shown in figure 2. To remove the

Fig. 1.—BIT WITH "SNAPS."

Fig. 2.—THE BRIDLE IN PLACE.

bit from the horse's mouth, is but the work of a moment, only one "snap" being used and afterwards returned to the same ring, the bit passing across under the horse's chin.

Qualities of a True Breeder.—The standard of excellence of the true breeder must be high and well defined, in other words he must have a clear idea of the various points of the perfect animal, and strive to attain, slowly it may be, but surely, to that perfection. This will require in him a keen eye, quick to detect faults, and also to recognize all good qualities as they present themselves. Beyond and back of eye-sight, he should have good judgment, by which he comprehends the causes that are at work to produce good or ill effects, and if possible he should be able to control the forces with which he has to deal. Any exterior points of beauty, as to outline or color, should not lead him to sacrifice the deep fundamental qualities upon which the great value of well-bred animals always rest. Lastly, he should not hope to produce an animal that is the best for everything. The best animal for beef-making can not be expected to excel at the pail, and the superior running horse, it is well known, is not the best one to put before a heavy cart.

The Chinch Bug.

BY PROF. C. V. RILEY.

Few, if any, insects attracted more general attention during the past summer, or did more serious injury in the large grain-growing sections of the Mississippi Valley than did the Chinch Bug (*Blissus leucopterus*, Say). Indeed, no species more seriously affects the grain-grower east of the great "Father of Waters," while it is doubtful whether even the Rocky Mountain Locust, taking one year with another, is so serious a pest in the great trans-MississippiStates. It is, also, one of those species most difficult to overcome at the time its injuries are most apparent, whereas judicious preventive measures during winter and spring will greatly lessen possible injury the ensuing summer.

Fig. 1.—CHINCH BUG. Hair line underneath showing natural size.

A Native Species.

The Chinch Bug is an indigenous American insect, and thrives most in southerly latitudes. It delights in a warm, dry climate. During revolutionary times it flourished in the Carolinas and in Virginia, rather than in New England, and to-day is more disastrous in Southern Illinois, Missouri, Kansas, Texas, and the Southwest, than in Minnesota and the Northwest, though it extends farther north in the Mississippi Valley than on the Atlantic Coast, owing, no doubt, to the greater dryness and the isothermal peculiarities of that portion of the Continent.

Destructive Powers.

As the Chinch Bug prevails most during years of drouth, it is somewhat difficult, in estimating injury caused by the insect, to eliminate that which is due to drouth alone. Careful computations by myself in Missouri, and by Dr. Le Baron and Prof. Thomas in Illinois, show that the loss to those two States, in 1874, amounted to about fifty million dollars, and these figures are a sufficient indication of the insect's destructive powers.

Food Plants.

The food of the Chinch Bug consists of the grasses and cereals, wild and cultivated, and accounts of its injuring other plants are misleading, allied species being confounded with it. Belonging to the Half-wing Bugs (*Heteroptera*), its mouth is *haustellate*, and food is obtained, in consequence, by suction, so that the plants attacked are sapped of their life, and not eaten up.

Characters, Habits, and Natural History.

The Chinch Bug is less than a fourth of an inch long, and its appearance at different stages is shown in the accompanying illustrations, the hair-lines indicating the natural sizes. The eggs (figure 2, *a*, *b*,) are amber colored, the young bugs vary from pale yellow with a touch of orange to bright red, while the pupa (figure 2, *g*,) is mostly brown, and the mature bug black, with white upper wings, having two characteristic black spots upon them. A dimorphic short-winged form (figure 3) occurs in Canada, and in the more Northern States. The species hibernates in the perfect or mature form in a state of torpor in whatever sheltered situations can be found. The hibernating individuals occur especially under dead leaves, in bunches of old dead grass or weeds, and in corn stalks and corn shucks. With the warmth of spring they issue from their winter quarters, and during mild, balmy days, freely use their wings and fly in all directions, being attracted to grain fields and especially to young wheat. The female chooses the lightest and dryest soil, and for the deposition of her eggs usually works into the ground, and there lays them upon the roots of the plant. Occasionally they are laid just above ground. "These eggs are deposited in little clusters, and the young lice hatching from them are at first bright red and remain for a considerable time underground, sucking the sap from the roots. A wheat plant pulled from an infested field in the spring of the year, will generally reveal hundreds of these eggs attached to the roots, and at a somewhat later period, the young larvæ will be found clustering on the same, and looking like so many moving red atoms. The female occupies from two to three weeks in depositing her eggs; the egg requires about two weeks to hatch, and the bug becomes full-grown and acquires its wings in five or six weeks from hatching. Individuals may be found of all sizes and ages throughout the summer

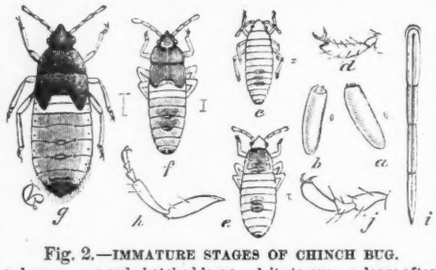


Fig. 2.—IMMATURE STAGES OF CHINCH BUG. *a*, *b*, eggs; *c*, newly-hatched larva; *d*, its tarsus; *e*, larva after first molt; *f*, same after second molt; *g*, pupa—the natural sizes indicated at sides; *h*, enlarged leg or perfect bug; *j*, tarsus of same still more enlarged; *i*, proboscis or beak, enlarged.

months, yet the great body of the first brood mature soon after the ripening of spring wheat." After an infested wheat field has ripened, or is cut, the bugs, of all ages and conditions, but mostly in the pupa and perfect states, frequently migrate to other fields, and especially to corn. At such times the mature bugs show little disposition to use their wings, though many of them do so. A second brood is produced, and it is the mature bugs from this second brood which hibernate.

Meteorological Conditions as Affecting Chinch Bugs.

There is nothing which experience has more firmly established in connection with this pest, than that heavy rains and wet seasons are destructive of it. I have witnessed the almost magical effect of a heavy and prolonged rain in a cornfield that was suffering badly. Warm, moist, or open winters are equally prejudicial to it. Such are the salient facts regarding the habits and natural history of the Chinch Bug that the farmer should bear in mind.

Fig. 3.—SHORT-WINGED CHINCH BUG.

Ewes with Early Lambs. — Ewes whose lambs are intended for early market, should be separated from the rest of the flock, and given more than ordinary care by themselves. A sheep that is in good condition, will give a good thrifty lamb, and be able to keep it strong from the start—an important point with those that are forced for the butcher. A few very early lambs, with proper attention, will bring large returns, often as much as five times the number that come at the ordinary time in spring, and receive no special care while they are young.

Barbed Wire for Fencing.

BY PROFESSOR S. A. KNAPP, DEAN OF SCHOOL OF AGRICULTURE, AMES, IOWA.

Among the fundamental questions in farm economy, fences are the most important, because of their extent, protection, first cost, and rapid decay. Within fifteen years, and more prominently within ten years, a new material—barbed wire, has demanded public favor, with very many arguments *pro* and *con*. In the Northwestern States it has rapidly become established in the confidence of the farmers, and mainly supplanted all other fencing. Let us consider, from the standpoint of the prairie, some of the reasons for this sudden popularity. The following are some of the requisites for a perfect fence:—1st. It must form a reliable barrier to the passage of stock, and must be furnished at a moderate cost. 2nd. It must be simple, durable in all places and climates, easily transported, and immediately available for a fence. 3d. It should occupy the least space practicable, thereby wasting little land, affording no harbor for weeds, and not seriously defacing the landscape.

Barbed wire comes nearer meeting all these conditions, in the larger portion of the United States, than any other material. Compared with hedge, board, or rail fences, it can claim superiority in nearly every point for a valuable fence on the farm. The main objection urged to its use is that of cruelty. It is claimed that horses, in particular, are liable to run against it and be seriously injured, if not maimed for life. If this objection is valid, and cannot be removed, then the use of barbed wire will be limited. Careful observers, however, have noted that the injury to animals has arisen from the stock being unaccustomed to wire fence, or from its faulty construction. Horses and cattle have had little respect for the ordinary board and rail fences of the country, and only the well disposed have been restrained by them. The first thing is to teach animals to entertain a becoming respect for a fence, and one that looks like a skeleton. While they are learning this lesson, quite likely some of them may get hurt; but once learned they always regard a line of posts as very significant. Injury to stock has more frequently arisen from faulty construction than from any other cause. A majority of prairie fences are made of three wires, which is a mistake, because the distance of the wires apart offers a constant temptation to the animal.

Experience has demonstrated the practical value of the following suggestions for constructing barbed-wire fence: Set substantial posts one rod apart; the post at the starting point should be braced by cutting a notch in it two and a half feet from the ground, and running a strong pole from the notch to the foot of the second post, where it is fitted to rest firmly, and is supported about three

inches above the ground by means of a short block driven down beside the fence post. This method of bracing should be repeated once in forty rods. A faulty construction would be to cut the notch in the starting post four feet from the ground, make the brace shorter, and allow the lower end to rest upon the ground; for the moment the wire is tightened upon the fence, the short brace acts as a fulcrum to lift the initial post. When the posts are set a wire is wrapped firmly around the first post, four feet and two inches from the ground; then the coil is unrolled forty rods and the wire drawn tight by means of a set of small pulleys with grapples. After this wire has been securely stapled, a second is similarly fastened one foot below it, and a third and fourth below this, leaving a foot space between the respective wires; the ground space is fourteen inches. Four wires thus arranged make a perfect cattle fence. For horses the lower wire should be without barbs to prevent cutting the knee, and a fifth wire should be placed upon the posts five feet from the ground.

The upper wire prevents accident by attempting to reach over the fence. Instead of the upper wire a galvanized steel-barbed ribbon, is used as more sightly for horses.

For swine, the fourth wire of a cattle fence is raised four inches, and two barbed wires placed at equal distances below it. For sheep, the three lower wires, as in a fence for swine, are smooth. Thus constructed, barbed wire, while uniting all the conditions of a perfect fence, is comparatively harmless. Upon the Iowa Agricultural College farm there are nine miles of barbed-wire fence, inclosing pastures upon which graze one hundred and seventy horses and cattle; during the season of 1881 not an animal has been scratched to draw blood, except in one instance, and that was slight and due to a faulty construction of the fence. Barbed wire will not answer for fencing in narrow lanes and yards, or any place where animals are liable to be crowded against it. Yards and lots for sheep can be made practically dog-proof by placing one barded wire near the ground, three fence boards above, and three wires above the boards; the lower wire prevents digging, and the upper wires suggest that the dog better not climb. Within such an inclosure the grateful sheep rest in perfect security.

Common Sense in the Poultry Yard.

BY MASON C. WELD.

Common Sense is too often uncommon sense, and there is more truth than novelty in this sentiment in its application to poultry keeping. It is not my intention to criticise nonsensical ways, but to show ways sensible.

The "poultry" that everybody keeps are technically designated "Fowls," or "Barn-door Fowls." As a rule they are kept in small flocks, fed chiefly upon what no farmer misses. On most farms a flock of 12 to 40 hens will pick up a living without receiving a particle of grain from May to October, including both months. Their food consists of insects, seeds, and grass or weeds; they need fresh water besides. What wonder is it that fowls thus kept are demonstrably more profitable than any class of stock, or any crop on the farm.

This is the best way to keep fowls, provided they can be induced to lay where their eggs can be found while fresh. To accomplish this a house of some kind is needed where the fowls may be shut in occasionally for a few days at a time, so as to make them roost and lay in convenient places. If fowls can roost in the trees, lay all over the farm, and "dust" themselves in the road, they will almost surely be healthy, lay a great many eggs, and keep in good condition. Besides, every now and then a hen will unexpectedly appear with a brood of ten or a dozen chicks, hatched under some bush where she had "stolen" her nest and done her hatching. That is all very well, so far as the hen is concerned, but no one wants it to happen. We wish the hens to lay and sit where we can put what eggs we please under them for hatching—and what is still more important, we wish to be able to collect the eggs for use or for sale *daily*. A *fresh* egg is a joy, a delight, a good gift of Heaven—a "*perfectly good*" egg is an abomination. An egg, to be fit to eat, or for sale, must be fresh beyond a peradventure, and utterly untainted with a suspicion of having been brooded or weathered. For this reason it is a most untidy thing to use natural nest-eggs. The nest-egg, after a while, is almost surely gathered, and of course is not "right."

The trouble about fowl-houses, even with liberal yards, is that fowls do not do well constantly confined. The number of eggs falls off, and the fowls become subject to disease, and especially to vermin—lice. All poultry-houses are liable to become thus infested, and the only cure and preventive is dust, and dustiness. It is best to provide extensive dusting boxes—not out-of-doors somewhere, or under a cow-shed, where the fresh winds will carry off the stifling dust rendered disgusting by its "henny" smell; but in the house itself, so that the atmosphere of the entire establishment will become thus dust-laden and oppressive. Dust will settle everywhere, and one, entering, will need a white coat as much as does a miller. The hens will revel in the dust, however, and it will keep the lice down, if not exterminate them.

As for the hens, they not only enjoy it, but dust is a necessity and a luxury to them, just as a morning bath is to civilized man. The dusting-box is their toilet-table—in fact, bath-tub, wash-bowl and pitcher, sponge and brushes and soap, and it gives health and long life as surely as the free use of water does to human beings.

As to feed—if fowls are confined they lose a great variety of food which must be, in some way, made up to them. When we depart from a close following after nature, we begin to complicate matters. Watch a hen as she trips picking about: now she takes a bit of grass or other greens; now she strips the seeds out of the seed-pod of some weed; now she makes a vigorous dive after an insect, and so on all day, she scratches and forages. So a variety is essential to the health of fowls in confinement. They need grain, and soft food, chopped scraps, or other flesh diet, and some grass, or other greens, which they like—such as lettuce or cabbages. They must have plastering, oyster shells pounded fine, or some other source of lime, besides fresh water constantly.

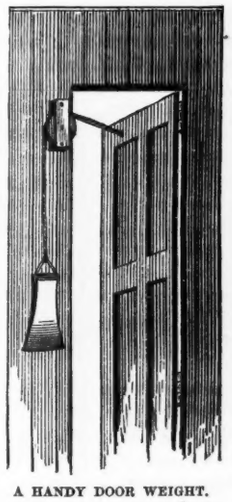
Better than all, they need an afternoon run, and a chance to scratch and pick in the door-yard, road, and barn-yard, if there be one. Here let me protest against hens being made use of as scavengers for picking up and cleaning up filth about the back-door. There is no better habit for farmer-folks to cultivate in regard to poultry, than on every occasion to drive them away from the kitchen door, and never to throw out anything that they can eat anywhere near the house. The practice of having a slop hole—or spot near the back door—where dish-water and other "slops," containing more or less that hens will eat—are thrown, is a filthy one at best. All such water should be thrown upon the dung-hill or compost heap. Here the hens may pick up many a crumb, and the manure will be greatly benefited.

In the matter of varieties, the fancy breeds are best let alone by any one who does not make a business or a pastime of poultry keeping. It is very pleasant for a person who keeps but a dozen or twenty hens to have them of some choice breed, and to take great pains with them; studying into their habits, their "points," and all that. But few persons have either the taste or inclination to be successful breeders, so, as a rule, it is best to keep common or mixed hens, but a full-blooded cock of one of the best breeds.

For general use, I think most persons who have had experience will agree with me, that the Plymouth Rock fowls are excellent, and either these or the Dominiques, or one of the Asiatic birds are to be recommended if a pure breed of fowls is desired for eggs, broilers, capons, and fat cockerels and pullets. For eggs alone, the White Leghorns are preferable, but they are neither economical for the table, nor are they to be depended upon as sitters and mothers. For several years I have kept only cross-bred, or "grade" hens. Taking a stock of Light Brahmas, they were bred with a Dorking cock, two years, then with Plymouth Rock cocks, and now I shall probably take a Brahma cross, in the hope of effectually eradicating the tendency to throw pink-legged chicks, a relic of the Dorking cross, and black ones, which come from the Plymouth Rocks. After that I shall recur to the last named variety, as I find it gives me earlier and better broilers, plenty of eggs, and fowls *always* fit for the table.

A Handy Door Weight.

The accompanying engraving, made from a sketch sent us by Mr. W. A. Hister, Clark Co., Ind., shows a convenient method of keeping a door closed. The contrivance consists of a pulley made from a section of a small log, with the flattened halves of a blacking box tacked on its edges to make it run more smoothly. An old worn-out axe is used as the weight, it being fastened at one end, while the other, passing through the pulley, is secured to the door near the top. The pulley should work easily in the frame; the latter is fastened to the inside of the door casing by



A HANDY DOOR WEIGHT.

means of strong nails. This door weight is specially designed for the small doors of barns, corn-houses, and other out-buildings.

Do Agricultural Fairs Pay?

MR. EDITOR:—This topic was up for discussion at the last meeting of the Farmers' Club, when everybody was hazing round to get ready for the Hookertown Fair.

Pastor Spooner said, "This club has been running nearly thirty years, or ever since the year after Hookertown began to read the *American Agriculturist*, and it might seem to be rather late to discuss the utility of Agricultural Societies and Shows. Most of our folks calculate to go to the fair, and show some of their crops and cattle, and must get satisfaction out of it in some way, or else they would not continue to patronize it. He noticed that the pens and cattle sheds kept extending every year, and that fruits, flowers, and vegetables kept multiplying, and the people kept coming in larger numbers, and yet he supposed there were people within ten miles of Hookertown who had never been to an exhibition, and could not see that there was a dollar's worth in it to any body. "It costs more than it comes to." There may be two sides to the question after thirty years of *American Agriculturist* reading and attendance upon fairs. Religion is scoffed at because the churches have not exterminated all the places of vicious resort, and converted all the infidels and heathen, but there is quite as much room for scoffing at the slow progress of industrial reform of any kind. There has been manifest change for the better in Hookertown, but up in the White Oaks, things stand about where they did thirty years ago. White beans and potatoes, corn and oats, charcoal and wood, are still the leading crops, and carts of the same type, and horses of the same scare-crow breed are still seen."

Jake Frink seemed to be nettled by Pastor Spooner's allusion to the White Oaks, and the charcoal business, which his son Kier still follows. He said, "I guess there's more truth than poetry in what Mr. Spooner says. The White Oaks looks jest as it used to when I was a boy, and, for the life o' me, I don't see enny chance for improvement. Ye see, the country is rocky, and the sile takes as naterally to white birches, pitch pine, and scrub oaks as a duck does to water. If a feller gets a livin' at all, up there, he's got to git it selling wood, and charcoal. Nuthin else pays, and that don't much. If a feller undertakes to clear up land, it costs more than it comes to, to git the stones out, so he can plow, and, if he sows rye, or plants corn, the crop won't pay, without manure, and where's your manure coming from when ye're ten miles from the shore and sea weed, and haven't got anything but charcoal or wood to buy it with? Ye see, it's up-hill business for the White Oaks, and it is no use to talk about the fairs doing the White Oakers enny good. Fact is, they don't go much, and it's just as well as if they did. And it ain't much better here in Hookertown. He knew Deacon Smith and Squire Bunker and them folks that had money plenty raised better things than they used to, and took premiums, and they might make it pay, but he had sent things to the fair for several years, but never got a red cent for a premium. My wife, Polly, gits premiums on butter, bread, and bed quilts, sometimes, and comes home so sot up that there's no livin' with her for a week after the fair. But it don't seem to be for me to git anything in that line, and I have pretty much made up my mind that the fairs are 'all talk and no cider.'"

Dr. Blossom, who is Jake Frink's family physician, thought cider might have something to do with bad luck at the fairs: "I have noticed, in my rides through the country to see patients, that the farmers, who are the best patrons of the tippling shops, have the least to do with our agricultural fairs. The trouble is not altogether in the poverty of the soil. Moral habits have quite as much to do with good crops, and premiums, as sunshine, rain, and fertilizers. I think I can pick out every farm, in the circle of my professional visits, whose owner frequents the tippling shop. There is an untidy look about the house, boards off the barn, gaps in the fences, bad smells in the barn-yard and pig-stys, lean cattle, and unmistakable signs of thriftless habits in every direction. Such farmers do not read agricultural papers, do not have anything to exhibit at the fairs, and if they go, it is to see the horse race, to make bets, or to swap horses. They do not think fairs pay."

The Doctor, who is well up in moral reform, and loses no opportunity to stick his prod into a tippler or smoker, takes a partisan view, possibly, of the matter, but there can be no doubt that bad habits are among the forces that stay the progress of agricultural improvement. Brain manure is about the best thing on the farm, and there is no better place to take in fresh supplies, than at the average agricultural fair. They are to be welcomed, for the fact that they help to get farmers out of the ruts—they are the most conservative of all classes of toilers—made so very much by their surroundings. They lead, for the most part, a secluded life, cultivating muscle more than brain, and intent mainly upon the daily task that is before them, and coming to the evening hour too weary to read or think much. There is a let up of labor at the fair, and a large number of new things, tools, seeds, vegetables, fruits, cattle, sheep, swine, etc., as well as new people to see and talk with. One must be very stupid, indeed, whose mind is not forced into new channels, and who does not carry away from the show many practical suggestions that will help him in the future. These suggestions are not money, but in many ways will save money, and help to make money.

The fair makes a farmer's holiday, and if there were no pecuniary profit in it, it would be worth all it cost, for this end alone. Those of us who were brought up on the farm fifty years ago or more, can remember when holidays were scarce, and rather poorly observed, when they came. There was Thanksgiving, Fourth of July, and the Militia Muster, that afforded the possibility of a little relief from servile labor. The opportunities for recreation, vain or otherwise, were few and far between. On rainy days we might go a fishing, and pay for the sport by toil as hard as that of the field. No wonder that farmers' boys escaped from the farm to the sea, and to the city, at an early age, and the girls eschewed cheese and butter making, and the household labors of the age of home-spun. There is no excuse for that now, and the fairs have had much to do with the great change that has come over the social life in our farming communities. The spinning wheels and looms have gone to the garret, or been used for kindlings, long ago. Cheese and butter factories have taken the place of the cheese press and the churn, and there is such a thing as leisure for the wife and daughters in thrifty farmers' homes. There is intelligence and culture, time for reading, and music, time for visiting, time for the farmers' club, and for the fair. The change is wonderful.

More than this, the fairs have paid financially, and laid a solid foundation for all this improvement in social and esthetic culture, which we find in so many rural homes. The new ideas gathered at the annual exhibitions have been good seed, sown on good ground, and have sprung up in golden harvests. The Jersey cattle, seen at the fair and purchased, have made better butter, and more of it. The Southdown sheep have made better mutton, and larger lambs. The drawings of model barns, with cellar beneath, have made farmers aware of the great loss of open yards for making manure, and of the immense waste of feeding hay at the stack yard, through the winter. The horse reaper and mower, the rake and the tedder, the loader and horse fork, the thresher, the cultivators and harrows, and other improved implements and machines, which transfer heavy work from human muscles to the horse, are all making money for the farmer. The fair held for the State, county, or town, has been a very effective means of advertising, and, largely as they have paid the manufacturers, they have paid the purchasers still more. Seeing is believing. The usual process at the fair is, I came, I saw, I purchased. So you may put down the Agricultural Fair as a paying institution, and don't you forget it.

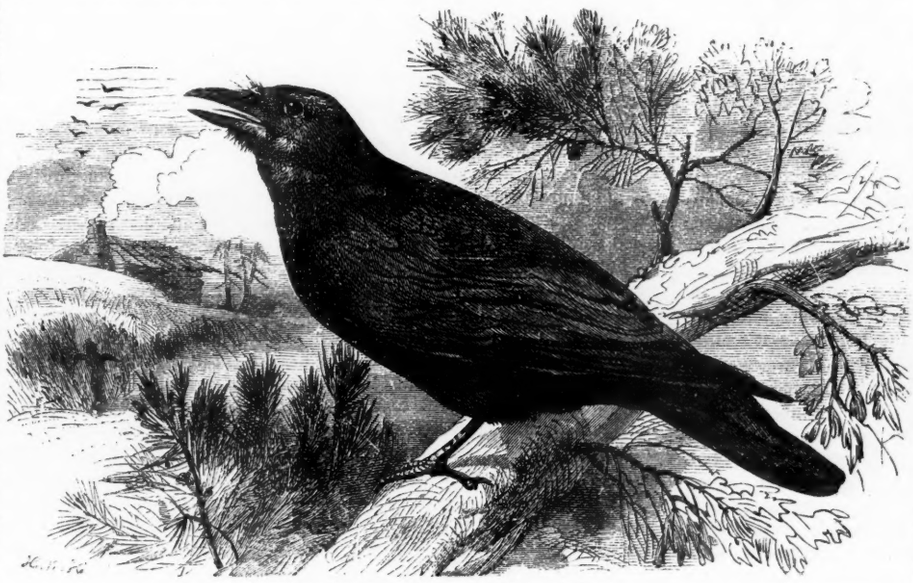
Hookertown, Ct., October 1, 1881. } Yours to command, TIMOTHY BUNKER, Esq.

Salamanders, or Water Lizards.

It was a superstition of the middle ages that certain lizards, called Salamanders, had the power to extinguish fire and thus pass through it unharmed, and many of the poor creatures have been destroyed in testing the truth of this groundless belief. The Salamander of Europe is common in central portions of that country; it is seven or eight inches long, and is black, with large yellow spots. We have in this country several allied species, one of the best known of which is the Spotted Salamander. It is nearly six inches long, bluish-black above and below, with a row of yellowish spots on each side. This Salamander is abundant in some western waters, especially in some of the brackish sheets of water in Wyoming Territory. Their appearance in their young state, or in what corresponds to the tadpole condition in frogs, is very different from their final and complete condition, and it is probable that the undeveloped forms of this have been described as distinct species. It is closely related to the Mexican Axolotl, which has been described by travellers as "a fish with legs." There are several other Salamanders, occurring from New England to Florida and Texas. They are usually found in moist places, and are perfectly harmless, however forbidding they may be in appearance. They may be regarded, on the whole, as beneficial, as they devour a large number of injurious insects and their larvæ. See illustration on next page.

The Common Crow (*Corvus frugivorus.*)

The Crow is a common bird throughout a wide section of country. When full grown it measures twenty inches from the head to the tip of the tail; is of a lustrous black color, and were it not generally regarded as a thievish bird, it would rank among the most handsome, as it is one of the most sagacious and cunning of birds. The nest is usually built in the top of a tall tree, and so that it will be concealed from view by the foliage; it is constructed of sticks, lined with bark, grass, etc., and for so large a one is very neat. The eggs, usually five in number, are green for the ground color, and variously marked with brown, olive, and sometimes purple. Crows are very social, and are usually seen in small flocks, roosting together, and retiring promptly to some secluded spot at evening, from which they leave very early in the morning. The sagacity of the crow is clearly shown not only in the building and secreting, but in the guarding of the nest. While building, for example, on the discovery of danger, it will at once take an indefinite flight, so that it is almost impossible to determine the general direction of the bird. The difficulty of approaching a crow with a gun is proverbial. The notes of this bird are highly unmusical, being a prolonged *caw*, or a shorter *oeh*, repeated at frequent intervals. In producing its notes the bird is obliged to gesticulate. The farmer's idea of a crow is so closely associated with the pulling of the young corn, that to say anything in its favor is thought by many to be heresy.

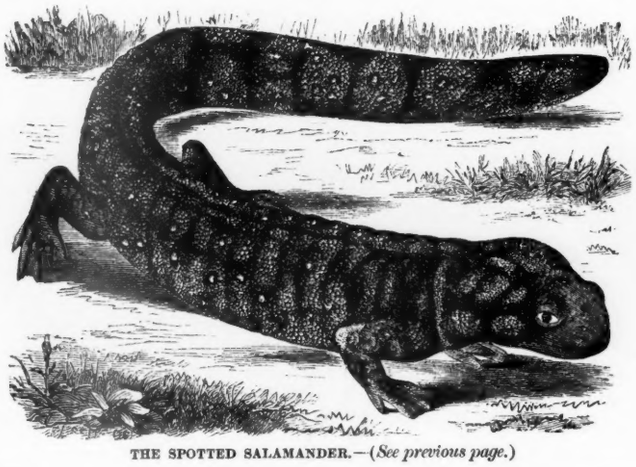


THE COMMON CROW (*Corvus frugivorus*).

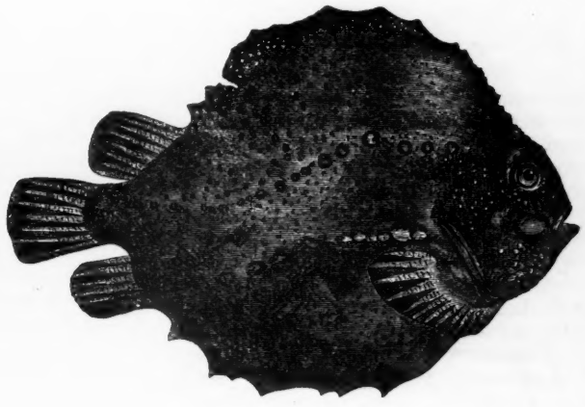
The days in which a crow can be destructive to the corn crop are but few, and all the rest of the year it is really the friend of the farmer. This black-coated bird is one of the greatest enemies of the "White Grub," the caterpillar or larva state of the "June-Bug" or "May-Beetle," and for this service, if for none other, the crow should be spared, and even encouraged. A flock of crows upon a newly-plowed field will destroy vast numbers of white grubs and cutworms, enough to make a decided difference with the following crop of grain. In many cases the crow only pulls those spears of corn that are wilted, it thus securing the marauder that has been at work below the surface of the ground. By what sense the crow is directed to the location of the grub, when there is no sign of his presence above ground, is more than we can say. The corn can be protected from the crows much more easily than the lawn, the meadow, strawberry bed, and many other places, can be kept free from the ravages of the white grub. While it must be admitted that, if left to itself, the crow can accomplish considerable mischief during the few days when the corn is small, yet we protest against killing it. Let the crow live, and prevent it from having access to the corn by means of some of the successful devices called "scare-crows," and then have the benefit of its good works for the rest of the year. A tame crow is interesting. We once had one which was let loose in the garden; the first thing it did was to pull up every label it could find; it then went for the lily buds. Fortunately death soon ended its career.

The Lump-Fish.

It is interesting to observe the various forms assumed by fishes. Some by their activity and strength are calculated to run down and prey upon weaker fishes, while others, by their unobtrusive appearance, and their resemblance to rocks and stones, are enabled to catch such prey as may not notice their presence. Of this latter class is the Lump-fish of our coast. The common name expresses its shape, it being of a clumsy appearance, while its colors, slate, blackish and yellowish below, are such as to make it very inconspicuous. A peculiarity of this fish is in its ventral fins, those upon its belly, which are so arranged as to form a sort of disk, by means of which it can cling very firmly to rocks or other objects. It is said that a naturalist placed one of these fishes in a pail of water, and when he undertook to take it out, the fish, by means of this disk, clung so closely to the bottom of the pail, that he lifted the pail, water and all. The Lump-fish is often caught on our coast, especially by cod fishermen, and though they are not eaten by our people, they are esteemed by those who live upon the shores of northern Europe. The Lump-fish of our coasts varies from 8 to 20 inches in length, and sometimes reaches the weight of 18 pounds. The scientific name of our species is *Cyclopteris lumpus*, the first or generic name meaning a circle of wings, in allusion to the outline presented by its fins. In the northern seas there are several other species of Lump-fish, all of which are remarkable for their ability to attach themselves to rocks, and even to other fishes, which they are said to do for the purpose of being carried rapidly from place to place. Their food is mainly small fishes, marine worms, and sea snails, and other mollusks.



THE SPOTTED SALAMANDER.—(*See previous page.*)



THE LUMP-FISH (*Cyclopteris lumpus*).

Hints and Helps for Farmers.

BY J. MEYER, LA SALLE CO., ILL.

A POST HOLDER is shown in figure 1, which is very handy for holding posts while they are being sharpened. A crotched pole, about

Fig. 1.—A POST HOLDER.

eight feet long, is obtained, and two legs inserted near the fork, or crotch. The larger end of the pole is held securely to the ground by means of two hooked stakes, which are driven into the earth. A stout wire or rope is fastened to the heads of the stakes, and passing over the end of the log, holds it secure.

A TREE-LIFTER is shown in figures 2 and 3. A hard-wood timber, six feet long, is used, to which two shorter pieces, $2^1/_2$ feet long, serving as legs, are fastened by a stout bolt. A number of holes are bored in the long timber to receive the wooden pin that holds

Fig. 2.—A TREE-LIFTER.

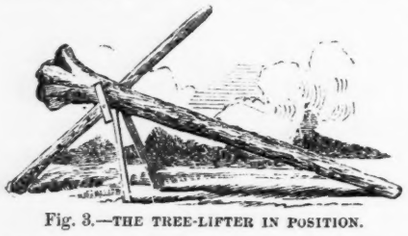


Fig. 3.—THE TREE-LIFTER IN POSITION.

the log upon the lifter. The lifter, when the log is raised, is shown in figure 3.

A SAW-HOLDER is shown in figures 4 and 5. A plank, 2 by 6 inches, and 8 feet long, makes the base of the bench. In this, holes

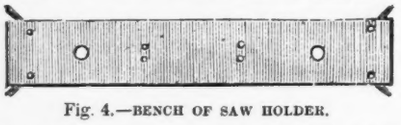


Fig. 4.—BENCH OF SAW HOLDER.

are bored, as shown in figure 4, into which the legs and posts are inserted. There are two large uprights with kerfs, into which the saw is placed, and afterwards firmly secured by means of wedges placed between

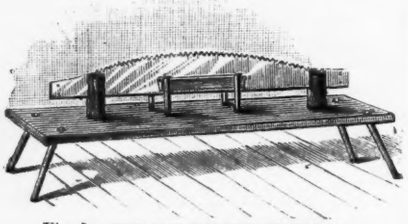


Fig. 5.—THE SAW HOLDER COMPLETE.

the saw and the small posts or pins near the middle of the bench. Figure 5 shows the arrangements of the posts, with the saw in place.

Take in the Farm Implements.—From what we have seen in our recent journeyings among the farmers, it is clear that all have not heeded the injunction so often repeated in our columns, that it is cheaper to house the various farm implements, than to leave them where last used in the open field. The reaper, horse-rake, and even the harrow, will last many years longer, and run easier in use, if kept under cover and from the rotting and corroding influences of the elements.

Flecks, or "White Caps," in Cream.

BY L. B. ARNOLD.

Flecks are generally supposed to be pieces of dried cream, and possibly sometimes they may be, but usually they are not, for occasionally they exist in milk before any cream rises, and sometimes are mingled with butter made by processes of cold-setting in which the cream remains soft, no part of it being dried at all. They seldom appear, however, in butter made by cold-setting; they are mostly found in butter made in dairies where the milk is set without any other cooling than that of the air in the room where the milk stands. For the most part they are developed in milk after it comes from the cow. By quickly cooling milk to a low degree, change is so much arrested that they cannot develop. They can only form within certain limits of temperature, and when they do, are likely to appear as plentifully in the milk as in the cream, and often more so, which is evidence adverse to their being originated from dried cream. In milk which is in a perfectly normal condition they never appear. They always occur in milk which is more or less faulty. They are very apt to accompany an inflamed state of the udder, and seldom or never appear without it. When milk is all right, the surface of the cream may be exposed to currents of dry air until it becomes quite dry and hard, without showing any indication of "white caps" as they are sometimes called. The dried cream, when mixed with the rest and well stirred up, soon becomes soft, and churns the same as the rest. But when milk, which is a little feverish, or in some other way faulty, is thus exposed to the air without being first well cooled, flecks will be pretty sure to show themselves in numbers proportioned to the exposure. Whenever flecks are liable to be developed, there can, with the aid of a microscope, be seen in the milk small specks of solid matter with fragmentary shapes which form the nucleus of the flecks. When such milk is set in a glass vessel and kept without much cooling, these specks can be seen to enlarge by the coagulation and adhesion of the milk in contact with them. Sooner or later they swell from gas forming within them, and, becoming lighter than the milk, rise toward the surface and more or less of them become imbedded in the soft cream. When they form in the milk they are almost wholly composed of curd, but when formed in the cream they are very rich in cream, having as much, and perhaps more, cream in their composition as curd.

Just what these specks are which form the nucleus of the flecks, is not positively known. They may be only bits of solid caseine, or they may be fragments of gland cells, which are always mingled with such milk, or possibly they may be pieces of the solid albuminoid known as *leucin*, which is found in milk, and which, when separated from the milk, decays very rapidly.

Whatever it is that forms the nucleus, it evidently undergoes putrefactive decay, and is the cause of the thickened milk which adheres to it, that afterwards swells with gas and rises, since putrefying substances readily curdle milk and develop gas. That organic germs have something to do with the matter is indicated by the fact that if milk is scalded high enough to kill living germs, the flecks do not form, but do form readily when the milk is kept warm enough to favor growth, and they then develop in the milk as much as in the cream, and sometimes even more.

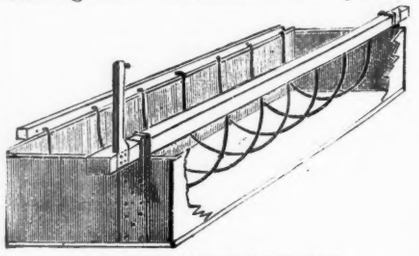
When milk in which flecks are liable to occur is set where the sun will shine directly on it, or even where much reflected light falls upon it, they form much faster than when light is pretty much excluded, and form on, or near, the surface, and much more plentifully in the cream than in the milk. A current of air over the milk also favors their development, and a damp air more than a dry one.

Flecks, or "white caps," whichever they are called, are apt to be more common in the fall and winter, when cows are drying up, and in hot and dry weather in the summer, when they are affected by heat and drouth. At such times their udders are apt to get inflamed, and this appears to be the cause, or at least a stimulating cause, of their origin.

There are different ways for disposing of flecks. The first and best way is to keep cows so healthy and well supplied with food and drink, that they will not form in their milk. Some attempt to dispose of flecks by mashing them and crowding them through a strainer, made of wire-gauze with fine meshes. By forcing them through the gauze by rubbing with a smooth wooden roller around the sides of the conical strainer, the flecks are broken to pieces and disappear by being pulverized. They never churn, however, whether fine or coarse, any more than curd would, and the finer they are the more likely are they to get caught in the butter and affect its keeping. Such butter ought not to be packed with that which is sound, for it is always a little imperfect. If one has milk in which the flecks are liable to form, their development can be prevented, as already stated, by either high heating or low cooling while new, and if, by unforeseen occurrences, they form and appear in the cream, they can be kept out of the butter when churning by gathering it in the granular form.

An Apparatus for Handling Hogs.

Mr. O. L. Rice, Jewell Co., Kan. sends sketches and description of a device of his own construction for handling hogs while scalding them. It consists of a 3 by 3-inch



A SCALDING "RACK" FOR HOGS.

scantling, about a foot longer than the scalding box, and bent rods of iron firmly fastened into the scantling about a foot apart, the curve reaching down into the box, as shown

in the engraving herewith given. The opposite ends of the rods are secured in a small scantling. The device should be so adjusted to the scalding box that it can be turned up and down by means of the lever fastened to the scantling; the iron rods should not touch the bottom of the box when they are lowered. The hog to be scalded is placed in the "rack," and let into and taken out of the scalding box by means of the levers. When the box is used for other purposes, the "rack" is easily removed from its place on the top.

Notes on Indian Corn.

BY PROF. W. J. BEAL, STATE AGRICULTURAL COLLEGE, LANSING, MICH.

For some years I have been collecting Indian Corn for a museum. An assortment will be placed on exhibition in glass cases. Most of the ears will be suspended to a hook by a screw-eye in the large end of the ear. One series of ears will illustrate all the colors to be found; one, the various number of rows from four to thirty-four or upwards; one, the various lengths of ears; one, the variation in diameter of ear; one, the various lengths of the kernels; one, the different shapes of kernels, from dent to rice-corn; one, all sorts of monstrosities. Cross-sections of ears will be shown; also drawings to illustrate the structure of the plant and kernels.

In color, I find white, lemon, yellow, orange, purple, pink, red, black, mottled, and mixed, with intervening shades. The largest ears are those of the "Chester County Mammoth." The ear is 11½ inches long, with 20 rows, and a diameter at the base of 2⅞ inches. The smallest ear is 1½ inch long, and is a yellow pop-corn. Most ears of corn taper from base to tip, but the ears of "Waukeshum" flint corn are cylindrical in shape, and well filled out at the end. The rows of this variety are eight in number, even and straight.

Where the kernels are of uniform size and shape, as on even, well-filled, cylindrical ears, the shelled corn will present the finest appearance. I have some ears of white pop-corn; these are only five inches long, and very tapering, being 1¾ inch in diameter at the base, and only ⅞ of an inch near the apex.

In texture, the pop-corns and northern corns are flinty; the dent corns are softer; and the "Tuscarora," or flour corn softest of all. The "Jersey" or "Yankee" dent is yellow, with eight rows of very broad, thin, short kernels. It is very peculiar, though quite beautiful. The ears of "Blount's Prolific" are rather small, short, and contain only eight rows of white dent kernels. It is well bred. Chemists have decided that, as a rule, there is no difference in the nutritive value of flint corns and dent corns. Sweet corn is more valuable than either. It is desirable that some one produce a prolific sweet corn for the main crop to feed. I have a little "husk corn," "wild corn," "podded corn," or "Rocky Mountain corn." It grows much like dent. Each kernel is covered with a separate husk, and the ear is covered with husks, like ordinary corn. The cob is so small, tender, and weak, that it often spontaneously separates before it is ripe. The tassels are very large, and often contain kernels of corn.

The tallest stalk which I have is 13½ feet. It was raised at Lansing from seed obtained in Missouri. I purchased some corn of a German neighbor. The ears were short, small, and would be called "Early Yellow Dent." The kernels were short, and did not cover the cob closely. They tapered toward the ends, thus leaving grooves between the rows. My neighbor said he liked the corn because it ripened early, husked and shelled easily, hence was good for hogs and horses. I think he might increase his crop one-third or one-half by procuring a better variety. There is no object in raising a variety that matures much before frost comes. The longer it can grow, the larger the crop ought to be.

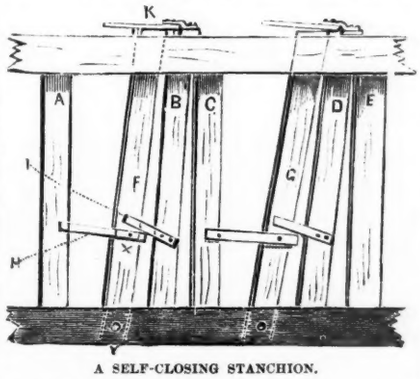
At the North, dent corn has a tendency all the time to mature earlier and become more plenty. The corn plant is wonderfully variable and flexible, in these respects, perhaps not excelled by any other in cultivation.

To improve corn, one should study the plants on which he intends to experiment. Let him take pattern after the successful breeder of animals. The latter studies the animals which are mated. Let a breeder of corn select some of the best stalks in his field, cover the young ears before the "silk" comes in sight. Then take pollen from a stalk very much like the one which is to bear the seed corn. Save the best ear, plant in a good place by itself, and cultivate well. Continue this work, and in a few years he can make almost anything he chooses of his corn. One should let no peculiarity of corn escape his attention. See which endures dry weather best; notice the hight of the upper ear, the stalk, the earliness, the number of nodes, whether the stalks are slender or stout; whether the ears have long or short husks, long or short, large or small shanks, etc. This is a fascinating study, and he who will begin an intelligent series of experiments looking to the improvement of corn, will be quite sure to succeed. He will interest and profit himself, and also become a benefactor to his race.

Self-Closing Cattle Stanchions.

BY J. N. MUNCEY, AMES, IOWA.

The accompanying engraving illustrates a cheap, durable, and convenient device by which cows or steers may fasten themselves



A SELF-CLOSING STANCHION.

in their stanchions. The pieces, *a*, *b*, *c*, *d*, and *e*, are immovable, *f* and *g* being the movable stanchions. A narrow strip, *h*, 1½-inch wide, and ¾-inch thick, is fastened by a bolt to the movable stanchion, *f*, and is just long enough, so that when the stanchion is open it laps on the immovable stanchion about one inch. The short narrow strip, *i*, is nailed on the immovable stanchion, *b*, with two wrought nails. A cow puts her head in the open stanchion above *h*, and in the effort to get the feed below, brings her neck on the strip, *h*, which presses against the immovable piece, *i*, and the stanchion is closed. The piece, *k*, which holds the stanchion fast, and the strip, *h*, is so arranged that they drop at the same time. It will be seen, therefore, that the narrow strip, *h*, does not interfere with the cow in lying down.

The advantages of this arrangement are two-fold; first, in the time saved, and secondly, in giving assurance that every cow is properly fastened in her stanchion. The last advantage is of the greatest importance to farmers who have disinterested men in their employ. I have found that even the most trustworthy hand is, at times, liable to neglect closing some one of the stanchions, in which case the result is almost always a badly hooked cow. The expense of constructing the device described will not exceed 5 cents per cow, including labor. The fastening piece, *k*, should be made so that there will be ¾ of an inch "play" between it and the movable stanchion, *f*, for comfort to the animals.

The Canine Curse.

BY F. D. COBURN, TOPEKA, KANSAS.

Few persons dispute the usefulness and value of a good dog, that may serve as an active, intelligent assistant or companion by day, or as a trusty guard by night; ready, if need be, to yield up his life in defense of his master, or his master's property. Such an animal is justly held in high esteem, and deserves the same kindly treatment accorded the most faithful of our dumb servants. While this is so, there is but a limited appreciation of the fact that the country is overrun with multitudes of worthless curs, in which savage, treacherous cruelty is inherent, along with a predisposition to the dreaded hydrophobia, causing enormous losses, and untold numbers of the most horrible deaths known to mankind, to say nothing of the cost of their subsistence, which alone, if saved and utilized for some good purpose, would afford the means of much beneficence.

So many, and of such frequent occurrence, are their atrocities, that not a few thoughtful men are propounding the query, if it would not be better for humanity if the entire canine race were to become extinct. The industry upon which the innumerable dogs bear most heavily, is sheep and wool growing, and in some localities it is the case to such an extent, as to virtually amount to prohibition. That wool growing in this country should be fostered, would appear demonstrated by the fact that, in fifty years, America has sent abroad $1,250,000,000 for woollen goods, or if we accept, as we must, the statement in the latest report of the Treasury Department Statistician, that, in the year ending June 30th, 1880, our people expended for foreign wool and woollen fabrics, the sum of nearly $58,000,000; the value of a wool-clip from 35,000,000 well bred sheep. In the year preceding, 128,000,000 pounds of wool alone were imported. As long ago as 1868, the Commissioner of Agriculture estimated the direct losses to sheep owners by the ravages of dogs, at $1,000,000 in wool and mutton, and the indirect loss in preventing sheep husbandy, especially in the South, at double that sum annually. Fortunately we have at hand a few official figures, showing to some extent the discouragements caused to sheep husbandry by the presence of so many destructive dogs. In 1878, Massachusetts was re-

ported as having 114,000 dogs, and 55,000 sheep, the latter gradually decreasing in numbers, while the former made a noticeable increase. In Ohio the statistics show that during the thirteen years, from 1867 to 1879 inclusive, the number of sheep killed by dogs was 459,437, valued at $1,296,398.23; the number injured by dogs, was 309,682, estimated worth $497,132.31. In Illinois, in 1876, the value of sheep slaughtered by dogs, was $30 578; in 1877, $63,752; in 1878, $43,885; for the year ending May, 1879, the loss was 27,338 head, with a valuation of $2.40 per head, or a total of $65,384. Kansas, its people being imbued with an appreciation of its advantages as a pastoral region, has as little partiality for dogs as any State, and strongly indicative of this is the returns of the assessors, showing an increase in sheep during the year ending March 1st, 1880, of nearly 42 per cent, and for the year ending March 1st, 1881, *almost 100 per cent;* but at the same time, this does not signify that there are no dogs in Kansas. The State Census of 1875, showed an enumeration of 74,696, and the assessors found 143,650 in 1881. It is the opinion of those who have endeavored to make such enumeration in this and other States, that through fear of taxation, and from other causes, not more than half the actual number are returned. If this is a correct theory, the canine population of this new State approximates about 287,000, officially reported as destroying in the year ending March 1st, 1879, 8,025 sheep; March 1st, 1880, 4,369 sheep, and March 1st, 1881, 5,361 of the same useful, harmless, wool-bearing, meat-producing emblems of peace and thrift. In the four counties of Doniphan, Norton, Sheridan, and Wyandotte, where a million sheep could thrive, the assessors this year found 1,377 head, watched and tended (presumably), by 4,576 dogs.

Observing men are of the opinion that an ordinary dog—and he is always hungry—will eat and destroy in a twelvemonth, the equivalent of that which, if given to a well-bred pig, would make him weigh at the expiration of that time, 300 pounds, gross; 286,000 such pigs would aggregate 85,800,000 pounds of pork, now worth at the home shipping station, more than $4,700,000; requiring to transport them, more than 2,860 cars, carrying fifteen tons each, or a train more than sixteen miles long. This would represent nearly $1,500,000 more than the entire amount paid in the State in 1880, for school, township, and State taxes combined; it would build 9,400 school-houses and churches, worth $500 each, or would pay the average wages of 14,000 school teachers, twice the number now employed. A condition of affairs, of which the above is but a poor outline, is at the bottom of what is each year becoming a greater and more irrepressible conflict between the wool growers and the savage brutes that keep in jeopardy, or destroy the flocks that, protected, would enlarge and increase to the extent of producing the wool for which we now send so many millions across the seas. If the dogs are maintained as a luxury, they are a luxury we cannot afford, and should give way to something less expensive, and less productive of loss and misery.

A well-known western agriculturist lost $300 worth of sheep by them in one night, and in another $250 worth, and says: "Iowa would have, to-day, $10,000,000 worth of property in her borders, that she does not have, only for dogs; and the farmers are the veriest fools in the world for allowing such a state of affairs." What in this respect is applicable to Iowa, is equally so to other States, and while the great masses of the people are so apathetic, or not educated up to the point of prohibiting such a curse, the day will come when valueless curs will not be permitted to exist as a stumbling block to one of the most profitable and pleasurable branches of rural husbandry.

The rearing of better classes of sheep, always indicates a high state of civilization, where intelligence, comfort, and competence abound, and no more unfailing sign of ignorance, squalor, and poverty, can be manifested, than the presence of a varied and increasing assortment of flea-bitten curs, unclean, and of low degree. It should not be difficult to choose between raising sheep and growing dogs.

A Small Cow Stable.

Mr. M. M. Day, York Co., Maine, writes: "I send you a plan of my cow stable. My cows are tied in stalls, 2 in each, with chains. There are stanchions on each side as seen in figure 1, *a, a*, being the stanchions, *b,b*, cribs;

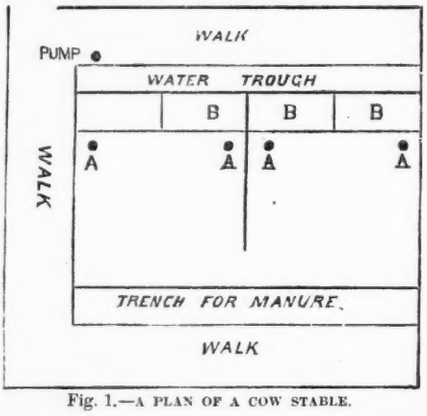


Fig. 1.—A PLAN OF A COW STABLE.

there is a watering trough, about 15 inches long, before each cow. I keep water in the trough all the time, the cows will lift the cover with their noses, and drink when they want to, after which the cover drops back, and keeps it covered. My pump is in the walk beside the trough; I feed under the trough, in front of the cows, out of the walk. The manure-trench behind the cows, is 20 inches wide, 6 inches deep. My stalls are 6 feet 10 inches wide, which is sufficient for two cows, and then they are always tied at the head of

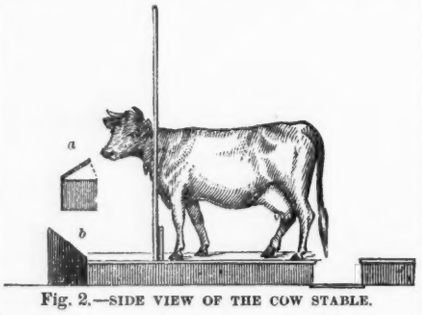


Fig. 2.—SIDE VIEW OF THE COW STABLE.

the stall, so there is no need of shifting cows if you get a strange one. My floor is 4 feet 6 inches long, and there is no trouble in keeping the cows clean. There is one stall floor, 4 feet 3 inches long for small cows. Figure 2 is a side view of the stable; *a*, is the trough, the dotted line represents the cover lifted; *b*, is the crib with a slanting front to slide the hay under the trough. The crib is 22 inches wide to slanting board. Trough 12 inches high from bottom of crib to under side of trough, 7 inches deep and 9 inches wide. The stable is lined up inside, and is so warm that the manure does not freeze during the winter, and there has not been any ice formed in the trough, except on two nights, and that was not thicker than window glass. The ventilator is open all winter; I believe in warm, well ventilated stables, good care, and a plenty of good food, and then the cows look well and make a good report of themselves in the milk pail."

Birds and Canker Worms.

BY S. A. FORBES, DIRECTOR ILLINOIS STATE LABORATORY OF NATURAL HISTORY.

The most serious losses of the farmer and gardener, due to insects, are not consequent upon the ordinary and uniform depredations of those species whose numbers remain nearly constant, year after year, but upon excessive and extraordinary depredations of those, the numbers of which are subject to wide fluctuations. Vegetation has become so far adjusted to our crickets, ordinary grasshoppers, etc., that the foliage which they eat can be spared without injury to the plant, and the damage done by them is commonly imperceptible. It is far otherwise, however, with the vast hordes of the Rocky Mountain Locust, the Colorado Potato Beetle, Chinch Bug, Army Worm, and many other species which occasionally swarm prodigiously, and then almost disappear. The injurious species are therefore chiefly the oscillating ones, and the dangerous species are those which show a tendency to oscillate. Anything which tends to limit the fluctuations of an oscillating species, or to prevent the oscillation of a stable species, is therefore highly useful; while anything which tends to intensify an oscillation, or to convert a stable species into an oscillating one, is as highly pernicious.

Acting upon these facts, the writer has undertaken, as a part of the investigation of this subject, to determine, for a definite area, the influence which birds may have to limit and reduce the destructive oscillations of insects, from whatever causes arising. For this purpose every opportunity has been used to secure as many birds as possible from situations where any kind of insect was unusually abundant, with the intention of making a careful study of their food under such conditions. As an example of this investigation, I have selected a study recently made of the effect of birds upon the multiplication of the Canker Worm in a large orchard in Tazewell County, Illinois, which has been for four or five years badly infested by this pest. An assistant was sent to this orchard in May, where he remained two days, carefully observing the birds in the orchard, shot a large number of them, and also collected as many carnivorous beetles as he could find. He reported the birds to be more abundant here than he had ever seen them before in the State on so small an area, not even excepting the period of active migration. On his return I made a searching and exhaustive examination of the stomachs which he brought back, and give here a general report of the result, without going into detail.

The birds shot were fifty-five in number,

and belonged to twenty-five species. One of the most abundant was the Black-throated Bunting (*Spiza Americana*), which was represented by eleven specimens—the largest number of any one species obtained. This bird, very common in prairie regions, belongs to the family of Finches (*Fringillidæ*), which also includes the Sparrows, the Grosbeak, and many other of our best known birds. The family is commonly reported to feed chiefly upon seeds and grains, taking insects only incidentally. These eleven Buntings do not bear out this statement, however, as only one of them had eaten vegetation of any sort, and this only a few seeds of the common "Pigeon grass" (*Setaria*), abundant everywhere in cultivated ground; while 93 per cent of their food consisted of insects, and the remainder of snails. Just half their food proved to be Canker Worms, 5 per cent other "measuring worms," 17 per cent cutworms of undetermined species, and 2 per cent snout beetles—these noxious insects thus composed about three-fourths of their food. Besides these I found only 3 per cent of carnivorous beetles, a few scavenger beetles (11 per cent), some ants, and a single wild bee, with a slight sprinkling of other insects. From 50 to 60 Canker Worms made an average full meal for this species of bird.

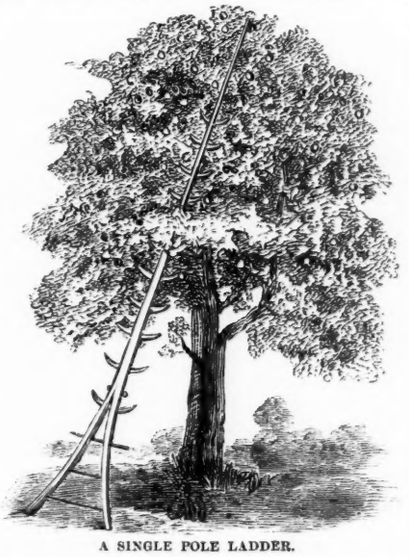
Next in order of numbers comes the Cedar Bird (*Ampelis cedrorum*), sometimes called the "Cherry Bird," and greatly persecuted for its mischief in the cherry orchard. This is one of the loveliest of birds; it flies in flocks and wanders far and wide, according to the distribution of its favorite food. A flock of about thirty had apparently taken up their residence in the orchard. The food record of the seven which were killed is very brief—Canker Worms 100 per cent expresses it all. The number of Canker Worms in each stomach, determined by actual count, ranged from seventy to one hundred and one; and was usually nearly a hundred. Assuming that these constituted a whole day's food, the thirty birds were destroying 3,000 worms a day, or 90,000 for the month during which the caterpillar is exposed.

The Thrush family rank next in importance. Three Robins, three Catbirds, and two Brown Thrushes, eight in all, were taken. Twenty per cent of their food was Canker Worms—although the Catbirds shot had eaten none—and 20 per cent cutworms and other caterpillars. Thirteen per cent was wire worms and spring beetles (*Elateridæ* and their *larvæ*), 11 per cent was leaf chafers (chiefly *Anomala binotata*), which is injurious to the grape); 8 per cent was ants, and 12 per cent was predaceous beetles (*Harpalidæ*). "Thousand-legs" and dung beetles made up most of the remainder. Having heretofore found the Thrushes and the Bluebird distinguished, under ordinary circumstances, for an unusual destruction of predaceous beetles, I looked with especial interest to the tables of the food these birds had taken under the very exceptional conditions existing in this orchard, to see whether they still kept up this habit. Fifty-nine birds of these species shot in May in previous years had been found to eat an average of 8 per cent of these useful insects; while those shot in this orchard had averaged 15 per cent of the same. This striking fact at once confirms the previous account of the habit of these species, showing that an unusual abundance of other attractive food does not break it up, and also shows the greater abundance of these beetles in this situation, indicating that they too, as well as the birds, were attracted to this place by the presence of the worms. The Thrushes do not seem to be as gross feeders as the Cedar Bird or the Black-throated Bunting, as twenty-five Canker Worms made them about an average full meal. Sixty per cent of the food of the single Bluebird shot consisted of Canker Worms, 35 per cent of predaceous beetles (*Enisodactylus Baltimorensis*), 4 per cent of spiders, and 1 per cent of dung beetles.

To follow the food of the remaining species at similar length, would occupy too much space, and I will mention only the most important and interesting facts. Canker Worms composed nearly 80 per cent of the food of two Indigo Birds, and about the same ratio of the food of two Orchard Orioles. In a single Black-billed Cuckoo, they made three-fourths of the food; in a Chickadee, likewise three-fourths; in three Summer Warblers (*Dendrœca æstiva*), 67 per cent; in two King Birds, or "Bee Martens" (*Tyrannus Carolinensis*), 43 per cent; in two Warbling Vireos, 35 per cent; in a Red-headed Woodpecker, 32 per cent; and in two Rose-breasted Grosbeaks, and a Red-winged Blackbird, respectively, 5 per cent and 2 per cent.

Another Fruit Ladder.

Mr. M. S. Coe, Oswego Co., N. Y., sends a sketch of a fruit ladder he has used several years, and thinks it superior to any other. A pole (basswood or hemlock) is split up five or six feet from the bottom, and spread as shown in the accompanying engraving. The "rounds" are $1\frac{1}{2}$ inch wide, and $\frac{1}{2}$ inch thick, and curve upward, thereby holding the foot securely against the pole. In picking, set the ladder pretty straight, and jump on the first round enough to set the sharpened points into the ground. Its



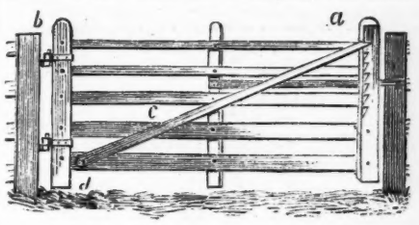
A SINGLE POLE LADDER.

advantages are: that it is light to handle, stands securely, and can be set in a small crotch where a two-sided ladder could not go.

Draining.—The season that is now closing, has shown many weak spots in the grain fields, and the remedy for them is largely drainage. Agricultural plants can not hope to do their best, or even repay the cost of sowing, on places where their roots must be either in a saturated soil, or one baked to the hardness of a brick. Such land must be drained to be profitable. It may be that there will be time before the season closes, to make the needful drains, and begin next year with no weak (because wet) spots in the field.

Bar for Sagging Gate.

Mr. J. K. Miller, Lancaster Co., Pa., sends a sketch of a farm gate, with an attachment to over-come the sagging: "The gate is made of ordinary inch boards, about six inches wide. The end of the gate, *a*, is made



A LIFT-BAR FOR A GATE.

of two boards, and the end, *b*, is made of 4 by 6-inch material. One board of the end, *a*, is notched. The diagonal piece, *c*, is fastened at *d*, by means of a bolt through it and the lower board. The end, *a*, of the diagonal piece, is shaped to fit the notches. By means of this arrangement, the gate can be raised and lowered any desired distance. It can also be used as a passage for pigs between fields, by simply raising the gate sufficiently to let them go through. A board is also tacked to the notched board, to prevent the diagonal piece from slipping out of its place.

Thick and Thin Seeding of Wheat.

BY J. M. MCBRYDE, PROF. OF AGRICULTURE, UNIVERSITY OF TENNESSEE.

A generation or so ago, four bushels, or 16 pecks of seed wheat, were considered a moderate seeding for an acre of land; now, not a few are contending that one peck will suffice. It is clear that either the old-time farmer was singularly wanting in observation, and recklessly lavish of seed, or that the agriculturist of to-day is advocating a "penny wise and pound foolish" practice, not based on the facts of ordinary experience. Are we not going too fast, or were our forefathers so hopelessly astray—is there no golden mean?

Boussingault well remarks, in writing of wheat culture, "it is, however, a question of the very highest importance, to ascertain the proper quantity of seed." It cannot be replied, "neither in this nor in any other agricultural process is there, or can there be, any cast-iron rule—different varieties, and soils, and times of sowing, and methods, require varying amounts of seed." Everybody knows and admits all this, but does not the exception prove the rule? The question is simply this—for approved varieties, average soils and seasons, usual times of seeding, and ordinary methods and culture, what is the right amount of seed, or the nearest approximation thereto, in any given section of country. Surely nature will vouchsafe some reply to experiments asking such a question as this. I do not claim that mine, herein detailed, embody her reply—but only that it merits close attention, and justifies the further questioning of the great mother of us all.

In the fall of 1879, 12 plats, of $\frac{1}{10}$ acre each, were laid off in a field of fair average fertility, which had been in clover for the two

years preceding. The soil was a good clay loam. The land was thoroughly prepared, and the seed drilled in without fertilizers of any kind, on the 15th of October. One plat was seeded with 3 pecks of "Boughton," a smooth, white, and rather tender variety; the next adjoining, with 3 pecks of "Champion Amber," a bearded red, and hardy wheat; the next with 4 pecks of "Boughton," the next with 4 pecks of "Champion Amber," and so on up to 8 pecks of each. The produce of each year in straw and grain, and the averages for the two, are given in the subjoined table:

TABLE OF EXPERIMENTS TESTING DIFFERENT AMOUNTS OF SEED WHEAT PER ACRE FOR 1880 AND 1881.

VARIETY.	Amount of Seed per Acre.	Straw, etc., per Acre.		Grain, per Acre.		Average, per Acre.	
		1880 Lbs.	1881 Lbs.	1880 Bu.	1881 Bu.	Straw, etc. Lbs.	Grain, etc. Bu.
Boughton.....	3 pks.	1880	1856	8.10	17.06	1868	12.58
"	4 "	1784	1536	10.80	13.06	1660	11.93
"	5 "	2192	1552	10.40	15.46	1872	12.93
"	6 "	2880	1920	15.40	20.53	2400	17.96
"	7 "	2400	2640	13.30	25.33	2520	19.31
"	8 "	2496	1904	11.20	20.80	2200	16.00
Champion Amber	3 "	2256	2772	12.40	24.80	2264	18.60
" "	4 "	2720	1408	14.90	14.40	2064	14.65
" "	5 "	3216	928	17.60	15.20	2072	16.40
" "	6 "	3392	1776	17.60	21.06	2584	19.33
" "	7 "	3424	2560	19.20	28.00	2992	23.60
" "	8 "	3680	1920	24.00	25.33	2800	24.66

The season of 1880 proved unfavorable—there was a heavy crop of straw, but the grain was seriously injured by the rust. Six pecks per acre, of "Boughton," and 8 pecks of "Champion Amber," gave the largest returns of straw and grain; 3 pecks of each, the lowest. In the "Champion Amber" plats there was, with but a single exception, a corresponding increase in the produce of grain, and with not one in that of straw, for every additional peck of seed used. This was not the case in the "Boughton," although the three most heavily seeded plats gave the best yields of both.

These experiments were repeated last fall, the plats being located in a different portion of the same field, and hence on wheat stubble. The same methods, culture, varieties, etc., were employed, and the seed drilled in on October 14th. Again, no fertilizers were used, in order to avoid unnecessarily complicating the results. The season was dry, but favorable to the production of grain, no rust being visible in the crop. This year 7 pecks of both "Champion Amber" and "Boughton," gave the largest produce of straw and grain, and 4 pecks of each the lowest of grain. In the "Boughton" the three, and in the "Champion Amber" the two most heavily seeded plats yielded best. The crop of the 3-peck "Champion Amber" plat was exceptionally large. This plat had been marked, long before the results of the experiments were determined, by both the Farm Superintendent and myself, as superior in fertility to the others. I prefer, however, to let its yield stand unaltered, for the following reason. The experiments of a single season prove nothing. An astronomer takes not one, but many observations of a heavenly body, when accuracy is aimed at. He argues that there is a high probability of the errors of the second correcting those of the first, that this probability in subsequent ones will amount almost to a certainty, and that the true value is given by the average of all. It is all-important that such a method of verification should be adopted in agricultural experimentation. In my experiments of last year, it is possible that the thinly seeded plats might have been, in spite of all the precautions used, inferior in fertility to the average of the field, the thickly sown ones, superior. This year the reverse might have happened. It would follow that the results of the one year, and even the conditions precedent, tend to correct those of another. Hence the great importance of continuing the experiments over a series of years, and the greater value attaching to average results. In this year and the last the seasons were entirely different. This is clearly shown in the varying ratios of straw to grain. In 1880 the average ratio in the 12 plats was 3.05; this year in the 14, (2 not included in this discussion), it was 1.56.

In comparing the averages of the two years, it will be noticed that 8 pecks of "Champion Amber" and 7 pecks of "Boughton," gave the highest yields, that the three most heavily seeded plats of each were the best, and 4 pecks the worst. These, and other interesting points are more clearly brought out by the following diagram, in which the averages of the grain and straw of each variety, for the two years, are represented by lines of proportional length.

The diagram explains itself. It is seen, for example, that in both varieties the grain reaches its lowest point at the 4-peck line, its maximum in the "Boughton" at the 7-peck, and in the "Champion Amber" at the 8-peck. The diagram photographs the increments. The straw, *e*, *f*, of the "Boughton" keeps fairly parallel with the grain, *a*,*b*; in the "Champion Amber," *c*, *d*, until the 7-peck line is crossed, when the two converge. The two varieties approach each other most closely at the 6-peck line, but the "Champion Amber" lines keep well above the "Boughton" throughout.

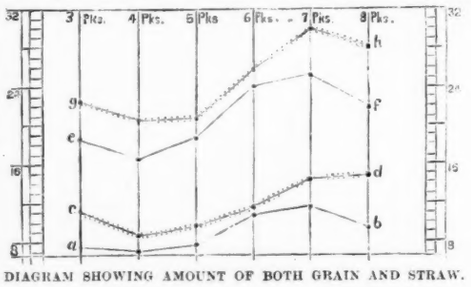
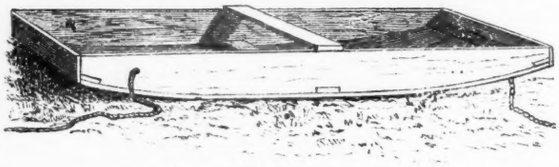


DIAGRAM SHOWING AMOUNT OF BOTH GRAIN AND STRAW.

To sum up.—It appears that the verdict of the experiments of this year and the last, with these two varieties, is in favor of moderately thick seeding (6, 7, and 8 pecks per acre), for average soils in this section of country. The 3-peck "Champion Amber" plat of 1881 shows, however, that on superior soils these amounts can be safely reduced. Why should 4 pecks give, in both varieties, the smallest returns? Is it possible that, like the Church of Laodicea, this amount of seed is neither one thing or the other—not enough to secure the advantages of heavy seeding, and too much to secure those of light? Again, the lower ratios of straw to grain in the 8-peck plats of both varieties, as compared with the 3-peck, show that the opinions of those who assert that heavy seeding will increase the straw at the expense of the grain, are not well taken. As to varieties—in the 26 experiments of the two years, 25 are in favor of the "Champion Amber." The 5-peck "Boughton" plat of 1881, gave a yield of grain exceeding that of the corresponding "Champion Amber" one, by only $^{26}/_{100}$ bushel. Finally, these experiments confirm the observations of Stevens and others, that heavy seeding tends to hasten the maturing of the crop; the heavily seeded plats were cut two days earlier than those that were thinly seeded.

Getting Out Muck.

Fresh muck contains valuable plant-food, but usually in an unavailable form. There are many instances where muck, applied to land, has proved positively injurious. Muck needs to be exposed to the action of the frost, rain, and sun, or, as it is termed, "weathered," for a season before it is fit to be used as a fertilizer. Even after it has thus been subjected to the elements, it is usually best to employ the finely divided muck as an absorbent of liquid manure in the stable or shed, or even the barn-yard. In this way the food elements are brought into a better state for the plants to feed upon. If the "weathered" muck and the manure can be composted together for a time, a still more valuable fertilizer is obtained.



A BOAT, OR SCOW, FOR GETTING OUT MUCK.

The lull in the farm-work, and the dry weather that frequently comes at this time, makes the getting out of muck a timely piece of work for October and early in November. The accompanying engraving shows a flat-bottomed scow, or "boat," that is built for the rapid and easy removal of muck from its bed, to a place upon dry ground. If the distance is short, a tram-way may be built, upon which the vehicle may pass the more easily.

American Cheese and its Export.

BY HON. X. A. WILLARD, LITTLE FALLS, N. Y.

[Owing to lack of space, we were obliged to divide Mr. Willard's article for last month.—EDS.]

Other Varieties of Cheese Needed.

But whether the opinions set forth are well grounded or not, there are other and more urgent reasons why American dairymen should enter at once upon the manufacture of different varieties of cheese, to suit the tastes and wants of the different nationalities of which our population is composed. We have among us a large foreign element other than English. Immigrants from the continent of Europe have acquired a taste for that variety of cheese made in the country from which they came. They do not call for Cheddar, but would eat freely of that which they have learned to like in their old homes. The German enjoys his Limberger and Gruyere, the Swiss his Schweitzer Kase, the Hollander his Edam and Gouda, the Frenchman his Neufchatel, Bric Camemberh and Roquefort, the Italian his Parmesan and Gorgonzala. There are many varieties of cheese which, if introduced here, would soon have a large consumption, not only among foreign born citizens, but our native population.

The statistics of immigration show that since 1846, eight million immigrants have passed through the port of New York, to say nothing of other ports. During the first half of 1881,

the immigrants landing at New York were 240,000, and by the end of the year it is thought the number will reach 450,000. For the year ending July 30, it is estimated that nearly 700,000 immigrants came to the United States, taking all the ports together. The immigration of Germans, since the Franco-Prussian war, has been very large, and is likely to be large for years to come. Why then should not our dairymen provide these people with the variety of cheese they like. Surely our home consumption could be thus promoted and our exports lessened. In some few localities Swiss cheese and Limberger have been imitated with great success, but the quantity made is comparatively small, and below the consumptive demand.

Home Consumption.

Our population is now fifty millions, and we ought to consume the entire cheese product of the country. It amounts annually to 400,000,000 pounds, and of this about 125,000,000 pounds are exported. England has a population of about 25,000,000, and her annual cheeseconsumption is over 500,000,000 pounds, or 20 pounds per capita. If we consumed annually our whole product, it would be only at the rate of 8 pounds *per capita*, but as we use no more than 275,000,000 pounds, the actual consumption is 5½ pounds *per capita*. If we used cheese as freely here as in England, our annual consumption would require one thousand million pounds. There is not the proper effort made to promote home consumption. The bulk of our *finest* cheese goes abroad, the poorer sorts are left for home use, and the influence of all poor, ill-flavored cheese, is to check the rate of consumption. Outside the chief cities it is seldom more than one variety is offered in market, and *that* is a second or third class Cheddar. There is pressing demand for *fine*, small cheeses, of 6 to 10 pounds weight, but our dairymen seem to make but little effort to get out of the regular exportation size and style—and so long as they have an annual surplus of 150,000,000 pounds of this kind, they must expect to have prices on our whole product regulated by a foreign market. Prices fluctuate from week to week, and from season to season, according to foreign demand and Cable quotations from Liverpool and London. In 1879 the *finest cheese* made in this country sold on the interior markets at 6 cents per pound. Because cheese sells high this season is no certainty that it will sell equally well next year. The recent developing of cheese dairying in Russia and other parts of Northern Europe, in Australia and New Zealand, will, in a few years, have more or less influence on our export trade. Our dairy interest ought to be independent of foreign shipments. Our population is rapidly increasing, and the entire cheese product of the country ought to be consumed at home, but to effect this desirable result, a change must be made in our running all goods into Cheddars. We must have more varieties and different styles to suit home wants. When this shall be fairly inaugurated, we may look forward to less fluctuation in our dairy markets, and to a very steady demand at remunerative prices.

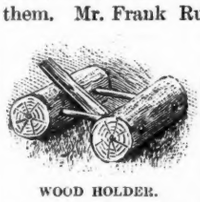
Nest Egg Gourds.—A correspondent in Penna. sends a sample of what he calls "Japanese Nest Egg Gourds." We are not so sure of the accuracy of the "Japanese" part of the name, as we are of the "Nest Egg" portion. The specimens were upon our table for some days, and not one of the many who saw them suspected that they were not real eggs. These little gourds in size, shape, and color, resemble eggs in a most striking manner. One of the burlesque writers of a few years ago spoke of eggs, as "Hen-fruit;" as applied to these gourds, the name is hardly a misnomer. Without any further knowledge than that afforded by the specimens, we suspect that this is the true *Cucurbita ovifera*, from which most of the ornamental or "fancy" gourds are derived. We wrote Mr. Samuel Wilson, who sent them, to inquire what proportion of the fruit was so perfectly egg-shaped as those sent. He replied that in a field of some acres he could not find a dozen that were not as perfect as these. He proposes to offer the seed for sale, so that every poultry keeper can have his nest eggs raised instead of laid. Aside from their ability to deceive an ordinary hen, these little gourds, or squashes, have many advantages over glass, porcelain, and other styles of nest eggs. Their being poor conductors of heat will be an important point; having a smooth surface they are easily cleaned, and though they are squashes, they are not so hard that there is danger that they will "squash" the real eggs in the nest.

A Rolling Hitch.

"W. Z. M.," Saratoga Co., N. Y., noticed in the May number the "clove hitch" for tying horses to a post, and having been a seaman for ten years sends a sample of a "rolling hitch" employed by sailors. "The method of making is to take the halter, rope, or strap in the left hand, and with the right pass the end around the post or tree from right to left under the standing part, and crossing its own part, pass it around again over the other turn, but under the standing part, then bring the end under its own part (as in the 'clove hitch') and haul it taut, when it is done. This hitch will hold when and where the 'clove hitch will not.' It will never slip if made right."

THE TIE.

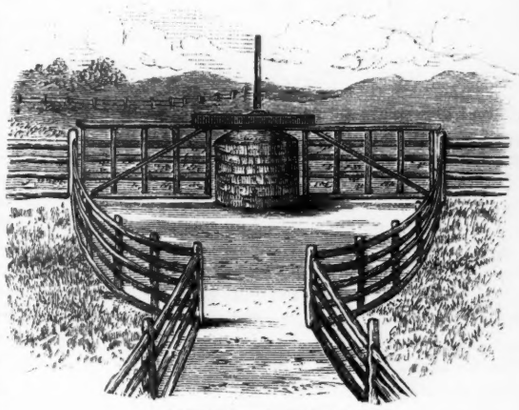
A Stove-wood Block-Holder.—It is very wearing upon the boot, and also a dangerous operation, to hold the blocks of stove-wood with the foot while splitting them. Mr. Frank Runnels, Kennebec Co., Maine, sends a description of a block-holder which is made as follows: "Saw from a suitable log, which is about 10 inches in diameter, 2 cuts, 2½ feet long; bore holes into these short logs, 6 inches from each end, and fasten them together with stout, hardwood pins." The construction of the holder is made plain by the accompanying engraving, as is also the manner of placing the block of wood that is to be held for splitting.



WOOD HOLDER.

A Double Gate.

Mr. R. Howell, Orange Co., N. Y., has a double gate which he sketches and describes for the benefit of our readers. The stone pillar is round, 3 feet across, and 4½ feet high. A post is placed in the center, upon the end of which the bar rests, bearing the two gates.



A DOUBLE HINGELESS GATE.

The pillar is set in the line of a lane fence, and at the corner of the field. With the fence arranged in a curve as shown in the accompanying engraving, only one passageway can be open at the same time. Mr. H. claims that this double gate, after long service, is still in good working order, and is one that he would not like to replace by any other kind of gate he ever saw in use.

A Grindstone Tool Holder.

Mr. J. A. Thatcher, Wyandotte Co., Ohio, has a handy contrivance to assist him in grinding his tools. It consists of a piece of plank about three feet long—depending somewhat upon the size of the stone—fitted into

A GRINDSTONE TOOL HOLDER.

one end of the frame of the grindstone. The upper end is cut to receive and hold the "handle"—a piece of scantling shaved round, and of the desired size to handle well. A board 5 inches long and the width of the "handle" is bolted upon the lower end of the "handle" to serve as a clamp for holding the tools. A curved and notched iron rod is fastened, as shown in the engraving, passing through a hole in the upper end of the "handle," which is held at any desired place by means of a spring fitting into the notches.

"Iroquois" again Victorious.—In September we gave an illustration of "Iroquois," the winner of the "Derby" race for 1881, and now the celebrated three-year-old colt adds the laurels of "St. Leger" to its fame. To win both the "Derby" and the "St. Leger" in the same year is an achievement that has been accorded to only a few

horses since these two great races have been established; and for an American to be the winner is certainly a grand triumph for this country, and will go far to impress upon the whole world the importance of the American turf. Mr. Lorillard sent a great race-horse to Europe when "Iroquois" crossed the Atlantic.

Artificial Milk.

BY PROF. F. H. STORER, DEAN OF SCHOOL OF AGRICULTURE, HARVARD UNIVERSITY.

Now that enormous quantities both of butter and cheese are prepared artificially from the fat of animals, it is interesting to inquire what has been accomplished, hitherto, in the way of making milk by artificial means. For although, practically speaking, the problem seems far enough from being solved, it is none the less true that several attempts have been made to imitate milk, and that some of these efforts have been partially successful. It is true, withal, that the conditions requisite for success have been tolerably well determined, and that it would not be very surprising if, any day now, some one should discover the final step which is needed to perfect the invention.

At the time of the siege of Paris, in 1871, the distinguished French chemist, Dubrunfaut, turned his attention to the question of preparing and preserving foods of one kind and another, and particularly milk. He argued that milk may be regarded as an emulsion of fat in an alkaline liquid. This term emulsion applies, of course, to a mechanical mixture of fat and liquid in which numberless minute globules, or drops of the fat, are held so firmly in suspension by the adhesion of the liquid to them, that they cannot either coalesce or readily separate out by themselves, as they would naturally, by force of gravitation, if there was no special attraction between them and the liquid. Dubrunfaut found, in fact, that almost any kind of fat, taken in the fluid state, could be emulsified in water that had been made slightly alkaline with Carbonate of Soda, so as to imitate the serum of fresh milk. When viewed under the microscope, the globules of fat suspended in this way had the same general appearance as the fat globules in natural milk, and they were of variable sizes like the latter. On using a somewhat stronger alkaline liquid, the result was still more striking, and the emulsified fat behaved very much like milk. On allowing the liquid to stand at rest, a creamy layer rose to its surface. As the practical results of these trials, Dubrunfaut offered a recipe, here roughly translated, for making artificial milk out of materials which were to be had in abundance in Paris at the time of his writing. His directions are as follows:—Dissolve in a pint of water some six or eight hundred grains of Sugar, or Glucose; some three to five hundred grains of dry Albumen (dried white of egg); and twenty or thirty grains of Sal Soda; and emulsify in this liquid some eight or nine hundred grains of olive oil, or any other oil or fat which is fit for table use. As regards this last point, it may be said that the beleaguered chemists proposed several plans for rectifying grease, and for removing from cheap fats and oils any unpleasant odors or flavors which would naturally hinder them from being used as food. It was noted that the emulsion above described may be made more readily at a temperature of from 120 to 140 degrees (Fahrenheit) than at the ordinary temperature of the air. The milky fluid obtained in this way was said to have the consistence of cream. But it could be reduced to the state of milk by mixing it with an equal bulk of water. According to Dubrunfaut, gelatine may be used instead of the albumen of the above recipe. In this case some 1,600 grains of fat that has been emulsified are mixed with a quart of liquid, which contains thirty or forty, or more, grains of gelatine. But in "milk" thus prepared the fat globules are held so firmly by the viscous gelatine solution that they can no longer rise as cream on standing.

It should be borne in mind that this factitious milk was suggested by the necessities of a beleaguered city, and that it was in no sense a commercial speculation. The animus of the idea is clearly akin to that of a suggestion thrown out about the same time by Gubler, to the effect that by rubbing together an egg and some ninety odd grains of sugar, and slowly stirring the mixture into some sixteen hundred grains of luke-warm water, a substitute for milk may be obtained. Dubrunfaut was nevertheless sufficiently well pleased with his process that he ventured to hope that it might perhaps survive the "fatal circumstances" which gave it birth. He suggested also that when made from cheap fats with beet molasses, and other commercial products, it might possibly be cheaper than cow's milk for rearing calves.

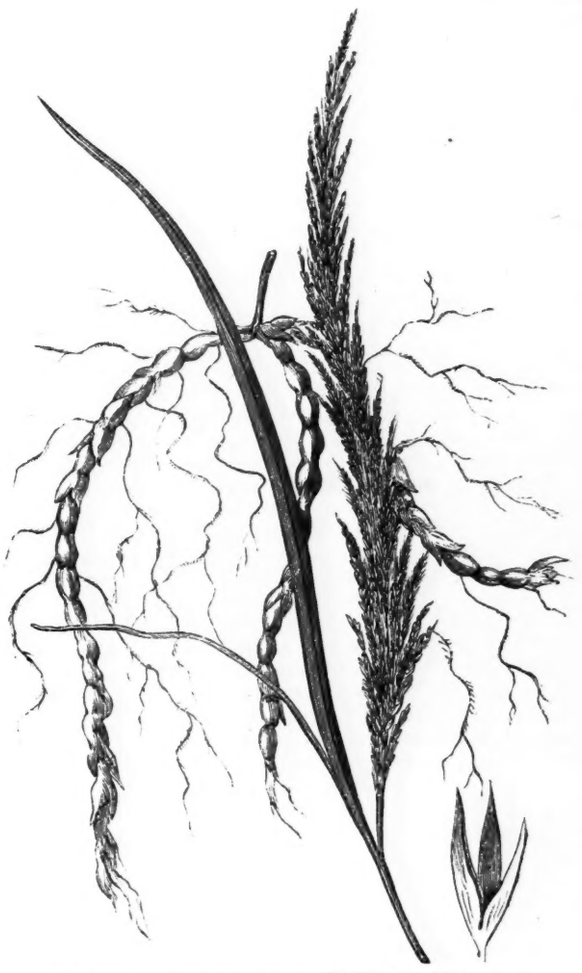
Within a year or two, a noted Russian chemist, Schischkoff, has taken up this milk question anew, and has given considerable attention to the subject of emulsifying fats; and so have several German observers, though neither of the latter seems to have paid any special attention to the making of milk. It appears in general that weak solutions of the Carbonates of Soda or Potash can only emulsify such fats as contain a certain amount of free fatty acid, although the proportion of the latter may be extremely small. In other words, fats which have "turned" slightly, and have become the least trifle rancid, are specially well fitted for forming emulsions—a fact, by the way, which has been known from time immemorial to the dyers of "Turkey-Red." There is no need, however, of having to use rancid fats in order to obtain good emulsions. Rancidity may be wholly avoided without the least trouble by adding a little pure Stearic Acid to the perfectly sweet fat from which emulsions are to be made. Schischkoff found, moreover, that fats emulsify more readily in proportion as they are hard, and that the softer kinds of fats require a larger admixture of free fatty acid than hard fats do. But it was evident that it is the chemical character rather than the mechanical condition of the hard fats which favors their emulsion, for in the trials now in question the fats were first melted and so used in the liquid state. The argument is that there is a stronger attraction between the emulsifying liquid and the constituents of the hard fats than exists in the case of the fluid fats, *i. e.*, the oils. The most permanent emulsions were obtained from fats that contained fatty acids such as do not readily combine with alkalies, for it appeared that the alkali-salts of fatty acids have only a feeble adhesive attraction for fats. It is not at all necessary, in preparing emulsions, that the whole of the fat shall be attracted by the alkali, for if any one constituent of the fat has a sufficiently powerful attraction for the alkaline fluid, this attraction will suffice to emulsify very considerable quantities of material which might be wholly indifferent when taken by itself. Thus it happens that Oil of Turpentine, Petroleum, and the like, though by themselves inert as regards alkaline liquids, may readily be emulsified therewith after a little Stearic Acid has been added to them. So too, a fat which by itself does not emulsify in an alkaline liquid may be easily emulsified in case another fat is first emulsified in the liquor. The fat which can be extracted from cow's milk by means of a mixture of Alcohol and Ether contains a certain quantity of free fatty acid, and may consequently be easily emulsified. Melted butter, on the contrary, contains, relatively speaking, less free fatty acid, and less solid fat, and it emulsifies with much more difficulty. The fluid part of cow's butter can hardly be emulsified at all, but it readily acquires the power as soon as some solid fat and a small quantity of fatty acid are added to it. By washing butter with the solution of an alkaline carbonate, its power of forming emulsions is destroyed, and it is remarkable that it is the solid fats in the butter which are chiefly extracted by alkali.

Although milk is not a mere emulsion of fat and alkali, inasmuch as it contains albuminoids, salts, and sugar, Schischkoff nevertheless found that he could prepare emulsions very similar to milk by closely imitating its natural components; *i. e.*, by first preparing a liquid similar to the more fluid part of milk, and then mixing with it fats of analogous composition to those in real milk. As other chemists had done before him, he found in whey a third albuminoid substance different from either Albumen or Caseine; and he observed in his experiments that while Caseine without Albumen would not yield cream but only milk, and that while the two albuminoids together gave both milk and cream, the presence of the third new albuminoid was necessary in order that the cream should be in a condition similar to natural cream. Schischkoff describes a "good" emulsion as one that smears glass strongly, rises slowly, and forms a decidedly deeper layer on standing than would be formed by the fat which is contained in it; it should be white and lustrous. Under the microscope it appears to be composed of small globules of tolerably equal size. It is seen plainly that the act of emulsifying consists in dividing the fat into little globules, and fixing these globules in position by the adhesion of the emulsifying liquid to their surfaces. It was noticed that the globules in the emulsions were apt to be smaller in proportion as the molecular attraction of the liquid for any one of the constituents of the fat was greater, and that in proportion as the globules were smaller the emulsions were less permanent. Shaking promotes the subdivision of the globules, and may consequently hasten the destruction of an emulsion. By long continued shaking the emulsions were, in fact, completely decomposed into fat and soap, which would not again act on one another. The emulsions were destroyed also by cooling, by diluting them with much water, by allowing them to stand for a sufficient length of time, and by manipulations which promote the formation or separation of soap, such as warming or the addition of strong lye, or the like.

The Pyramidal Bellflower.

In describing one of the newer garden species of Bellflower (*Campanula Tenorei*), in September last, we called attention to the great variety in size, form, and habit, presented by the plants of this single genus. In enumerating some of the unlike forms, we omitted to mention that there is one found in our wet meadows and boggy places, that has so weak and slender a stem that it supports itself by clinging to grasses and other plants. It cannot properly be called a climber, but its slender stem is angled, and the angles are furnished with minute hooks, which allow it to cling to other plants. This species is the Marsh Bellflower (*C. aparinoides*). One at first sight would hardly suppose that this delicate little wild flower belonged to the same genus with the sturdy garden plant here figured, the Pyramidal Bellflower (*C. pyramidalis*). The difference is in size and manner of growth only; an examination of the flowers would show the structure to be very nearly alike in both. The Pyramidal Bellflower (*Campanula pyramidalis*), is a native of the mountains of Southern Europe. It is one of those grand old plants, formerly in great favor in England, but which have been pushed aside by new introductions. On the continent it still retains its popularity, while in this country it is so seldom seen in cultivation that it has all the variety of a novelty. We are glad that there is a growing taste for perennial plants in this country. While we admire annuals, and the tender plants known collectively as "bedding plants," as much as any one, we do not like to see our flower lovers deprive themselves of a large class of most interesting and beautiful plants, merely because they do not "bloom the first season." The seeds of perennial plants must be sown one year in advance in order to get plants strong enough to bloom the next year. Our amateurs must do this, unless they choose to purchase the seedlings of those who raise them. The Pyramidal Bellflower has a strong stem from four to six feet high. The lower leaves are broad and heart shaped. The abundant shallow, bright blue flowers are about two inches across, are placed closely upon the stem, and form a floral spike of rare beauty, which continues in perfection, if shaded from the sun, for two months or more. The engraving, taken from a seedling plant in its first year of blooming, shows but a simple stem. When the plant gets stronger, the stem throws up several erect branches from the base, and the numerous stems together form a floral pyramid which gives significance to the specific name—*pyramidalis*. There is a variety with pure white flowers. Besides its use as a border ornament, this species does well in pot culture. In some parts of England it is a popular plant in the cottage windows, where very fine specimens are sometimes met with. It is in England often called the "Chimney Bellflower," as it was formerly grown by the side of the fire-place in the summer months. Though somewhat out of fashion in England, the Hollanders still cultivate this fine plant as of old, and use it to ornament their halls and stair-cases, and to stand at the fire-place in the summer season. To us, a plant once beautiful is always beautiful, and the fact that it is old-fashioned, and has been grown and cherished for generations, gives it only a greater claim on our consideration. Having it well started in the open ground we hope to try it in-doors. As with other plants of its class, the seeds should be sown as soon as ripe, in this climate in September or October, and the young plants should be protected in a cold frame, or if in an open border, by a covering of evergreen boughs. The seedlings mostly flower the second year, though some wait until the third. Established plants are readily multiplied by dividing the clumps.

THE PYRAMIDAL BELLFLOWER (*Campanula pyramidalis*).



THE MEXICAN DROP-SEED GRASS (*Muhlenbergia Mexicana*).

The Mexican Drop-Seed Grass.

In examining the stock of a school-furnishing store in a German city, we saw large sheets, mounted like maps, upon which the various plants of field and garden cultivation were represented in their proper colors. Upon similar sheets, there were given with equal fidelity, the weeds of cultivation, in all cases the various common and the botanical names being given. These are for hanging upon the walls of the school-house, where they are both decorative and instructive. An ordinarily bright child, from seeing these pictures every day, would learn the appearance

of the weeds and their names, even if no effort were made to teach them. That some method is needed in this country, by which the children of farmers, and also the farmers themselves, could be made familiar with the appearance of the most troublesome weeds, is shown by our correspondence. We receive every few days letters asking the name of exceedingly common weeds, but which have recently forced themselves upon the notice of the senders. It is often the case that a comparatively innocent plant, being a new comer and unknown, causes great alarm for fear that it may be of a dangerous character. The Canada Thistle is known by reputation in those places where it has not yet appeared, and we receive each year several different plants with the inquiry if they are not the dreaded Thistle. Another plant similarly feared by farmers is the Quack or Couch-grass, and numerous innocent grasses have been sent under suspicion of being this. If the children of these farmers could see at school, good colored plates of these weeds, they would know that whatever the suspected plants might be, they were not the dreaded weeds, and relieve the anxiety of their parents. The grass most frequently mistaken for the Quack-grass (*Triticum repens*), is the Mexican Drop-seed (*Muhlenbergia Mexicana*), which, in its manner of spreading by underground stems, is much like the other, and is sufficiently annoying, especially in gardens, to merit a prominent place among weeds. Singularly enough, those who have written upon grasses, though they mention its running root-stocks, do not speak of their troublesome character. As it evidently passes for Quack-Grass with a great many, we will endeavor to show how it may be identified. The stems, somewhat slender and wiry, are from one to two, and in rich soils three feet high, and are much branched, often giving off a branch at each joint. The underground stems, or root-stocks, shown reduced in the engraving, are thickly covered with scales, and run a short distance below the surface, extending in all directions from six inches to several feet, according to the nature of the soil. The panicle or flower cluster terminates the main stem and the branches, its base is often enwrapped by the upper leaf; it is much branched, but the densely-flowered branches are not spreading, and they are often tinged with purple. The individual spikelets are of very simple structure; one of them is shown much enlarged at the lower right-hand corner of the engraving. They consist of two glumes (the outer scales) within which is a single floret of two palets: as the outer incloses the other, but one is shown; all the parts of the spikelet are very acute, or sharp-pointed, but bear no awns or bristles. The genus *Muhlenbergia* was named after the Rev. Dr. Muhlenberg, of Pennsylvania, an excellent botanist, who wrote a work upon grasses in the early part of this century. There are about 10 species east of the Mississippi, but farther west and southward in Mexico they are more numerous. They were formerly included in *Agrostis*, and as Linnæus probably first received this species from Mexico, he named it *Agrostis Mexicana*, and the specific name was retained when it was placed in *Muhlenbergia*, though it is not so common in Mexico as it is northward. The common name, "Drop-Seed," comes from the fact that some of the species drop the seed or grain as soon as ripe. This grass is very common, and in the older States, at least, is often a great pest in cultivated grounds, especially in gardens. It is readily distinguished from Quack-Grass by the flower cluster. In Quack-Grass the much larger spikelets are placed directly upon the stem, forming a dense spike or head, like a small head of wheat, while in the Drop-Seed the cluster is branched. Each scale upon the root-stock stands at a joint which bears a bud; when broken apart each of these joints will grow and form a new plant, hence careless culture will increase the grass rather than subdue it. When the grass is first discovered in cultivated grounds, it should be at once forked out, taking care to pick up every fragment of root-stock. If too much of the troublesome grass is present for this treatment, then a crop that may be often hoed or some smothering crop should be tried.

THE WILD OR CREEPING THYME (*Thymus Serpyllum*).

Plant Labels.—Though gardeners all over the world have, for hundreds of years, been striving after the plant label, which should so meet every requirement as to be worthy of general adoption, it has not yet been found. When the Society of Arts, of London, offered prizes in money and a medal, we hoped that there would at last appear the label so long looked for. The time for awarding the prize came not long ago, 120 different forms of labels were offered, but out of the whole number there was not one regarded as of sufficient merit to receive the prize. The trial will be repeated; there is to be another competition for the same purpose at a future day, and meanwhile we must use the best label we can find.

Wild Thyme, a Troublesome Weed.

A few weeks ago we received from E. Hurley, Delaware Co., N. Y., specimens of a plant, with the statement, that it threatened to destroy his meadows and pastures, and asking for its name, and for the remedy. The plant was found, on examination, to be the Wild or Creeping Thyme (*Thymus Serpyllum*), which is not generally known as a troublesome plant. Mr. H. writes that in his section "it is spreading rapidly, and that, when in full possession, it covers the ground like a Brussel's carpet, exterminating the grass. Cattle will not eat it, and land that cannot be cultivated will be rendered entirely useless." He adds that: "Unless this weed can be exterminated, large areas of dairy lands must be completely ruined." It is seldom that we have any data as to the time of introduction and the rate of extension of any of our established weeds, and we are glad of an opportunity to put upon record this one at the beginning of its campaign.

The Wild Thyme is a low herb, the numerous slender, prostrate stems of which form dense tufts, from a few inches to a foot or more in diameter. The engraving gives a few separated stems, in order to show the shape of the small leaves and the manner of flowering. The small purple flowers are in dense clusters at and near the end of the stems, and in such numbers as to make the tuft appear almost covered with them. It has an aromatic odor, but different from that of the Garden Thyme (*Thymus vulgaris*), which is so much cultivated as a seasoning herb. That differs from this in its more erect habit of growth and in other particulars. The Wild Thyme is found all over Europe, and in a large share of Asia. While it is especially abundant in Great Britain, we do not find, upon reference to English works, that it is anywhere regarded as an aggressive weed. In this country it has long been known as an introduced plant in the New England and Middle States, but so far from being troublesome, it is put down in the books as "rare." Since its appearance in Western New York as a weed, we recollect to have seen, about fifteen years ago, near Newburgh, N. Y., a lawn, in which there were several patches of this Thyme. It may be that it has yielded to the frequent mowing given to the lawn; at all events, had it spread to a noticeable extent, we should have heard of it. As to the treatment of land on which this Thyme has established itself, it is difficult to advise without a more full knowledge of the locality and of the plant. The descriptions do not say anything about the character of the root of the plant. If it does not "spread by the root," that is, form underground runners, and if every fragment of the root that is broken off will not form buds and push out roots, and thus make a plant,

then uprooting the clumps by means of a fork may be practicable, if the plants are not too abundant. If this would be too great a task, then it will be necessary to break up the field, harrow out the plants, and grow one or two smothering crops of Buckwheat, to be turned under; then sow to grain, and seed down anew. A consideration of the points above indicated should allow one to decide intelligently upon the best course to pursue.

Notes from the Pines.

It is sad to witness the destruction caused by the drouth in all this section. Many plants are killed outright, and the fallen leaves are thick upon the lawn, having been hastened to a premature ripening. To leave this desolation of drouth, and in a few hours reach New England, was like passing to an entirely different country. There rain has been so abundant, that vegetation has a spring-like verdure, and the lawns have a perfection that is most pleasant to look upon. If we do not have abundant rains before winter, to fill the soil, and that season is a severe one, the destruction of trees, etc., that will follow is not pleasant to contemplate.

Among the many new plants introduced in the course of a twelvemonth, in any department of horticulture, only a small share prove of real value. After a thorough trial it may be that but one or two of the introductions of a year find a permanent place in our collections, the rest have a brief day, and are not again heard of in the catalogues.

One of the plants of recent introduction, that has apparently "come to stay" is

Hyacinthus candicans,

or as the European journals have it of late, *Galtonia candicans*. This was figured in the *American Agriculturist* for February 1881, page 65, and my experience with it since, more than confirms the favorable account there given. The remarkable thing about the plant is, its hardiness, as no one would expect a bulb from the Cape of Good Hope to endure a New York winter. Strong bulbs throw up stems three and four feet high, the upper portion of which, for a foot or more, bears a pyramid of large, gracefully drooping, bell-shaped flowers of the purest white.

This is an excellent thing to plant among low shrubs, where the cluster of flowers shows above the foliage of the shrubs with fine effect. The flowers open gradually from below upwards, and if a stem be cut when the lower ones begin to open, and placed in water, the blooming will continue, and the cluster will remain an object of beauty for a week or more. . . . I mentioned a few years ago

The Destruction of the Fine Lawns

of Prof. C. S. Sargent, Brookline, Mass., by the White-Grub, which so cut off the grass-roots that the turf could be rolled up like a rug, in large sheets. Many acres of lawn had to be made anew. This season the lawns were attacked in places, large portions here and there showing the characteristic brown color. During a visit to this place in September last, I looked from the window of my room early in the morning, and saw a most interesting sight. Upon one of these brown patches in the lawn were 30 or more crows in a high state of excitement, and their antics in "going for" the grubs were most amusing to witness. The wonderful part of the performance is that they should know just where to find the grub, when it is hidden below the surface; what sense, whether of hearing or smell, guides them to the right spot, I cannot say, but this much abused bird is most efficient in destroying the grub. Unfortunately it does not get at work until the grub is near the surface, and has well nigh accomplished its mischief. Not only do the crows destroy, but robins and blackbirds come to their aid, and though too late to preserve the lawn, their services in reducing the number of future beetles are of great value. Upon the same place, the grubs have made

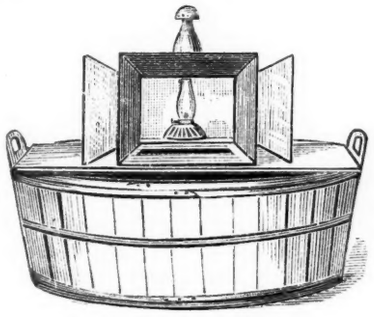
Havoc with the Potato Crop.

In a field of some three acres a large third of the whole crop was injured and rendered useless for any purpose except immediate feeding to the pigs. In some cases a grub made its way into a large tuber, and eating around and around would leave only a shell. The voracity of these creatures is enormous. The birds appear to pay no attention to the grubs in the potato field, probably because these are at their work too far below the surface.

Are These Pests Increasing?

It is certain that we did not hear so much of their ravages 15 or 20 years ago as we now do. Whether it is because the insects are multiplying more rapidly, or because more persons make their troubles known, it is difficult to say. The only way that their numbers can be essentially reduced is to attack them in the beetle state; concerted action in this matter of all in a neighborhood would no doubt greatly diminish this serious affliction.

Not long ago the *American Agriculturist* descrioed and figured some beetle traps, invented in Texas. In view of the fact that the only hope of diminishing, if not destroying this serious drawback to horticulture lies in attacking the beetle, Prof. Sargent has been at work of late upon a trap which promises better results than any I have before seen. Taking a French trap as a basis, this has been modified in various particulars, especially in catching the insects in water instead of in bags, as in the French trap. The engraving will show the construction of the affair. It consists of a central lantern, about 15 inches square, in which is placed a kerosene lamp with a large burner; the sides are of glass, and provision is made for the entrance of air from below, and for its exit



A TRAP FOR MAY BEETLES.

above. In front of each side is a flaring reflector, like the lower part of a pyramid placed horizontally; at the lower side of each reflector is an opening, about two inches wide, and running the whole length of the side, and close to the glass. The affair is intented to stand upon a tub or barrel, containing water. The reflectors cast such a powerful light for a long distance, that the beetles are attracted, and in their endeavor to reach the light strike against the glass with great force, and drop through the openings in the reflectors into the water below.

On the first appearance of the May—or June-bug in the spring, every gardener and fruit grower should set to work and destroy every beetle possible. When one enters the house it shows that large numbers are not far off

The Japanese Creeper.

This plant was first introduced as *Ampelopsis Vietchii*, but it was found to have an older name, and is properly *A. tricuspidata*. As our native *Ampelopsis* is known as Virginia

OUTLINES OF JAPANESE CREEPER LEAVES (*reduced*).

Creeper, Japanese Creeper seems to be an appropriate name for this. The rapidity with which it has spread, and the extent to which it has been planted since its introduction, are testimony to its great excellence. Not only in the suburbs of Boston is it to be seen on every place, but in the city itself, especially in the newer streets at the Back Bay, house after house is completely draped by it. One of the finest exhibitions of it is on the gateway of Forest Hills Cemetery, that extended structure being so completely covered by it that none of the stone work is visible, and it clings so closely that the details of the architecture are not lost. So generally is it planted in the city and vicinity that elsewhere it is often called "Boston Ivy." When first planted the leaves are very small, an inch or a little over in length, and irregular in shape. After the stems are three or four years old, leaves are produced which are so unlike the earlier ones that they might readily belong to a different plant. They are three or four inches long, nearly as broad, with leaf-stalks of equal length to twice as long. The leaves are entire except at the end, where are the three strong-pointed lobes that give its specific name of *tricuspidata*. The texture of the leaves is very firm, and they are of much darker green than the small ones. In autumn colors this vine quite equals our own Creeper. It clings to stone, brick, iron, and wood with equal facility, grows rapidly, and is to be commended to those who wish to plant a vine of the kind. Its small early foliage was figured in these pages in October 1878, page 384. The engraving shows the two kinds of leaves, reduced in the same proportion. To save room the long leaf-stalk of the larger leaf is not shown.

THE HOUSEHOLD.

☞ *For other Household Items see "Basket" pages.*

Window Shelves for Plants.

In partial return for the many hints I have received from the *American Agriculturist*, please accept the following, which, so far as I am aware, is original with me. If one has window shelves for plants, it is convenient to have them so arranged that the plants may receive the greatest possible benefit from the light in the daytime, without incurring the risk of freezing at night. To accomplish this, take two of the castings used to hold up the ends of curtain rollers, figure 1, and fasten them on the inside window casing at the desired hight. For the shelf, use half-inch stuff, cutting it the shape shown in figure 2. The width at the widest part may be five or six inches; at the ends one inch. Bore gimlet holes lengthwise into the narrow ends as indicated by the dotted lines, slip the shelf between the castings, and put a picture nail through the hole in each casting, and into

Fig. 1.—THE BRACKET.

Fig. 2.—THE WINDOW SHELF.

the gimlet hole in the corresponding end of the shelf. Insert a screw-hook in the ceiling above, directly over a point half way between the short edge of the shelf when turned toward the glass, and the same edge when turned toward the apartment. From this hook No. 9 or 10 wires depend, and are hooked upon wood-screws in the edge of the

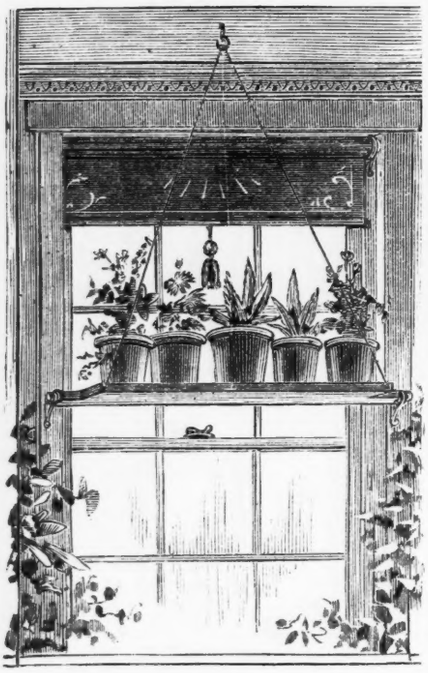


Fig. 3.—THE SHELF IN POSITION.

short side, the shelf itself being thus supported in a horizontal position, whether turned in or out. If other shelves are required, they may be put between castings fastened lower on the casing, and be supported horizontally by a wire depending from the edge of the upper shelf. The advantage of the arrangement is, that, in addition to the higher temperature secured for the plants by the turning of the shelf, the window curtain can be conveniently interposed between the glass and the shelf at night. If a wider shelf is desired, a suitable block may first be attached to the casing, and the casting screwed to that; or, if the castings are not at hand, a bracket-like block may be used instead. Care should be taken to have the shelf fill the space between the end supports, as in this way it will be stronger, and the whole affair should be as light as is consistent with necessary strength. RUBUS.

Home Topics:—Childish Disrespect.

BY FAITH ROCHESTER.

This is the fault that some persons would punish with especial severity, and such persons are apt to judge superficially, or more by a child's words than by its meaning or motive. Very young children often speak disrespectfully without any idea that they are doing wrong. They are natural democrats (not in a modern political sense), and they have an innate sense of "equality." "If you won't be saucy to me, I won't be saucy to you," said little Fanny when her mother reproved her for sauciness. Fanny's mother, perhaps, had never thought that a parent could be guilty of sauciness, but I often think of the child's remark when children speak disrespectfully to their parents. I can usually see that they have brought it upon themselves—that more patience and gentleness on the parent's part would have prevented the hasty reply.

Parents certainly should treat their children with respect. Not as though the children were their superiors, but as though they had rights which all were bound to respect, and feelings which the parents should regard, and tastes and preferences worthy of reasonable consideration. Children so treated will not be tempted to serious impudence. I do not say that they will never speak words that sound saucy. The only way to prevent that, is to bring them up in a state of constant *fear*, so that they never speak at all except in well-considered words. If children feel free and easy and confidential with their parents, they will be apt to address them sometimes very much as they do their playmates of their own age, and sometimes this will seem disrespectful when no disrespect is intended. Of course we should try to teach them good manners, and this includes gentle and respectful behavior, but if we send them to school, or allow them to play with their little neighbors, they will probably pick up expressions that we cannot admire, and use them in the family. Few children of natural independence or spontaneity have never said "I won't" to their parents. But often this means nothing more than an expression of preference—or too vehement expression, which should certainly be modified. But the child expresses the momentary feeling, and immediately repents, and intends no disobedience.

You remember the Bible story about the two who were bidden to go work in the vineyard. One said, "I go, sir," and went not. The other said "I go not," and afterwards repented and went. I am sometimes reminded of this by the children's conduct. Who are we that we should sit in judgment of the children and condemn them? If we are the children's parents we are a part of the "old stock" whence the children, with their various dispositions, have sprung. If the disposition is what is called "bad," did the child deliberately choose it? Did it even ask for you as its parents? Did you not bring it into the midst of life's grave responsibilities without asking its consent or consulting its preferences? It is certain, then, that the child has a right to great patience and forbearance from those whose duty it is to give it support and education.

Most of us commit the same faults that we deplore, and try to correct in our children. Probably we have learned more prudence than they, but few of us are always courteous in our treatment of others.

I hope no one supposes me to be making a plea for sauciness. I disapprove of it heartily, but I think that duplicity is a fault that has a deeper root and more dangerous tendency. Some children of the most respectful demeanor toward parents and teachers, turn out to be most treacherous persons, and when they get beyond the *fear of the lash* they naturally mature into scoundrels.

If we must choose between a very quiet and respectful behavior in our children, with never a word amiss, and with a growing reserve between parents and children as the latter mature; or a frank companionship and intimate fellowship between parents and children, though the frankness sometimes turns to momentary sauciness—I, for one, should choose the latter alternative; and I could hardly be sorry, in sober moments, if my children had spunk or independence enough to assert themselves if I should forget myself and encroach too far upon their self-respect.

In almost every family there are discordant temperaments, and these will sometimes clash, especially when put under the hard strain of poverty, to which many are born.

Mending Stockings and Shoes.

BY A MINNESOTA HOUSEKEEPER.

You do not hear people talk of *mending* stockings. They *darn* those articles usually. But I have learned to sew patches upon stockings after they have been worn a good deal, and have borne considerable darning. New heels of strong woollen cloth may be sewed into old woollen socks, and strong cotton heels into cotton hose. The old ragged heel may be cut away, but the new heel should be made large enough to lap well under or over the edge of the stocking, as cut away. Do not turn in the edges, because this makes the work too bungling, but darn lightly back and forth across the two edges, or if in great haste (as many a poor mother must be if she has all the work of a family to do), run around both edges, not drawing the thread too tight. For patches on other parts of the stocking besides the heel, strong parts of old stockings of the same quality are most suitable. Of course this is not so nice as good darning, but it is much more quickly accomplished, and in many cases this is a very great merit.

Many poor people have no idea how many pennies they might save if they would sometimes mend their own shoes. I don't know much about the cobbler's art, but I have learned by experience that a coarse needle and strong black linen thread can accomplish wonders. For instance, here is a pair of "school-girl shoes." That is what the shoe dealer called them when we inquired for

something strong but respectable (in a child's opinion, which should of course be consulted when possible), for a rather hoydenish little girl. Two months ago they seemed quite "worn out," they looked so shabby, and the little girl thought she never could wear them any more. But I sewed all around where they were ripped, over the top around the foot (not around the sole—fortunately that remained good), and on the back of the shoe, replaced the missing buttons, and oiled and blacked the shoes. To-day they look better than before I did this work, though they have been worn a part of every day since. Last winter I was so successful in sewing a large morocco patch upon the burned side of one of Baby's kid gaiters, that patching shoes no longer looks impossible to me. I cut patches from old shoes of the same quality, and sew them over the hole, so that they look about as well as a cobbler's work. It takes very little time, but I would not recommend it to all.

Rearing and Training of Children.

BY MRS. E. H. LELAND, AUTHOR OF "FARM HOMES, INDOORS AND OUT-DOORS."

Never hamper and torment children with clothes that are "too nice" to be anything but wretched in. They may be taught reasonable care in regard to soiling their clothes, but to see a child in a constant spiritual straight-jacket, for fear the mud-cakes, or the game of marbles, or the jolly romp will soil the knees, or "muss" the apron, or disarrange the hair, is an indication of idiotic parentage. There are cheap, light, half-wool fabrics, sold in gray, and in brown plaids and stripes, that—piped with bright colors—make up into excellent dresses or blouses for little folks, being just as cool as print and gingham, requiring no starching when washed, and not soiling or rumpling easily.

Let the children have plenty of sleep. I have seen young children—almost infants—waked and made to get up two hours before their natural sleep was finished, merely because it was thought best that they should "eat breakfast with the other people." Imagine yourself in the hands of a giant, and being hauled out of bed while in the midst of profound and refreshing slumber, just for the privilege of eating breakfast with a lot of other giants who grin at you if you are cross, and perhaps vigorously spank you—some one of them—if you say or do anything expressive of your wretched feelings. There are no healthy children who take more sleep than they need; and yet we often see young boys "routed" before sunrise and set to work, with empty stomach and dizzy heads, at chores that might just as well await the coming of a decent hour. Let us all pray to be preserved from that slashing, mule-headed, and often ignorant farmer, who "drives" everything before him—including his wife and children! In the long run he comes out a good ways behind his more efficient and more enlightened neighbor, who takes things easily and does things pleasantly, and steers clear of that kind of haste which makes waste. The first step toward making boys "hate the farm" is to cut down their rightful hours of sleep, and make the beginning of every day thoroughly wretched to them.

Children can hardly be too much in the "open air." We all observe how much healthier and happier they are in the bright dry weather with which we are blessed for a portion of the year. With the long, cold rains of autumn begins the dismal time for birds and children; and even we grown people, in spite of our work and our mental resources, feel depressed and saddened. To the children's loss of soft breezes, warm sunlight, and the freedom of all out-doors is added the crushing knowledge that they "make tracks," that they "litter the carpet," and that they "kill people with their noise." In our Northern States there will be five or six months of this sort of thing. Now, much of this winter discomfort to all parties might be saved if children had such clothes as would enable them to be out at play a part of the time, even in forbidding weather. No matter how coarse and plain the clothes if they are warm and stout, and as waterproof as possible. An investment in thick, high-buttoned over-shoes, and extra cloaks and jackets, is of course pleasanter and less expensive than an investment in doctor-visits. To be sure, doctor-visits are not always the alternative, but the better the regimen under which children live, the fewer visits of this sort. As for "toughening" children by sending them half-dressed in the damp or biting air, none but ignorant and stupid people do such things—our churchyards are already sufficiently full of little graves. Give the children warm feet, something over their ears, and good staunch flannels between them and Jack Frost, and they will grow up far stronger and "tougher" than the poor little shivering ones who have to pull their heads into their shoulders, and huddle together like calves in a winter's storm, for lack of sensible clothes.

It is a fact that country children suffer for want of pleasant and improving amusements.

A genuine shepherd dog—a good-natured and a faithful animal who knows almost everything—would be a capital companion for the children in their sports and wanderings, and very useful for watching and for bringing up the cows.

Home-Made Christmas Presents.

A KNITTING APRON is a useful present, and it can be made as plain or tasty as the maker chooses. A width of material, thirty-two inches long, is turned up across the bottom to make a pocket twelve inches deep;

Fig. 1.—A KNITTING APRON.

the sides are hemmed, and the top gathered into a band; two button-holes are worked in the top of the pocket, and buttons sewed on the apron to correspond. The work can be dropped into the pocket, and the balls kept together if one has to stop in haste. The apron is large enough to hold a large piece of work and materials secure from dust, which is quite a consideration when one is doing a delicate piece of knitting or fancy work, and picks it up at odd minutes. If the apron is made of figured calico, white, with a red spot is pretty, the pocket must be cut off and sewed on to make it right side out. If plain material is used, a pattern can be done in chain-stitch across the top of the pocket.

2.—HANDKERCHIEF CASE.

A PRETTY HANDKERCHIEF-CASE is made by crochetting in any open stich, out of single zephyr, a piece five inches wide, and ten inches long; fold it together so as to make a square five inches each way, with the opening in the middle, across what is the top of the case; crochet a scallop of contrasting color along each side of the opening, and around the square; run a ribbon along each side of the slit, and tie in a bow at each end. It makes a prettier scallop to go around the edge with the same color, in what is called "mitten" stitch.

Fig. 3.—THE BACK.

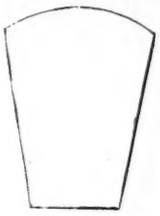


Fig. 4.—THE FRONT.

A SLIPPER-CASE makes an acceptable present for a gentleman. Cut one piece each, of the shape and dimensions given in figures 3 and 4, from stiff paste-board. Cover the back on both sides with dark cambric, first putting a thin flat stick across the top, to keep it from warping. The front of figure 4 may be of Java canvas, with a pattern worked on it, or it may be of dark linen, with figures done in outline, in colored cruel. When the front is worked, over-hand it and the lining, which should be of cambric; over-hand the front and back together, covering the seam with a cord. Fasten a cord to the top of the slipper case, by which to hang it up. Q. R. O.

Fig. 5.—THE SLIPPER CASE.

Haw Jelly.—At a friend's house, not long ago, we were offered at table a jelly, that we took to be the imported Guava, as it closely resembled that in flavor. We were much surprised to learn that it was a native product made from a native fruit. One of the Thorns, common in Georgia and other Southern States, furnished the raw material in its abundant fruit. The species is probably *Cratægus glandulosus*, and from the excellence of the jelly that it affords, it might well be brought into cultivation as a fruit tree or shrub. Has any one tried the fruit of any of our northern Thorns for this purpose? Some of them bear an abundance of large and pleasantly flavored fruit.

BOYS & GIRLS' COLUMNS

The Doctor's Talks.

Not long ago I said that during the summer season the inquiries from my young friends were almost entirely about insects, but I now have two which have reference to animals as unlike insects as can well be imagined. Here comes

A Note from the Sea Shore.

Fig. 1.—A JELLY FISH.

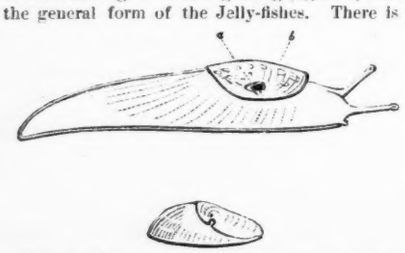
"C.M.N." found upon the beach at "Sea Side Park," N. J., a specimen "which none of the 'old salts' seemed to know. When found it was a globular mass of the size of a base ball, but has collapsed by the pressure of my hands to the present small size." When the "specimen" reached me it was a dried, shapeless mass, yet having seen others in similar condition, I recognized the object that was sent to me as the

Remains of a Jelly Fish,

and very curious creatures these Jelly-fishes are. In the works on Natural History they are described as *Acalephs*, which is from the Greek word for a nettle, in reference to the stinging powers of some of them, and for the same reason they are often called "Sea Nettles." That this is an appropriate name I recollect to have had direct evidence. I took a bath in the Gulf of Mexico, many years ago, where the Jelly-fishes were so abundant that they were carried by every roll of the surf in contact with my bare back; they greatly interfered with the pleasure of my bath. The Jelly-fishes are divided into several groups, but we will here consider them as a whole. They have jelly-like bodies, and are without any solid parts, like bones or shell. They vary greatly in size, some being so small as to be scarcely visible, and it is some of these minute Jelly-fishes that make the sea phosphorescent at night. In our northern waters, bright sparks are often seen in the wake of a steamer, but in far southern waters they are often so abundant as to make the sea as brilliant as if it were liquid fire. From these microscopic forms we have others of larger size all the way up to what may be regarded

As Monsters of the Sea,

as some have been measured that were seven feet across, and the "tentacles," or arms, more than 100 feet in length. The engraving (figure 1) shows the general form of the Jelly-fishes. There is a



Figs. 2 and 3.—SLUG IN MOTION AND AT REST.

hemispherical body, which is nearly transparent; from this hang numerous long threads or "tentacles" as they are called. It is by these that they seize their prey, which is conveyed to the stomach at the center of the lower part of the body. There is much that is curious about the early condition of some of these animals, as they begin life as very different creatures from the form they assume when full grown. The Jelly-fishes are often of beautiful colors, and this, with their graceful movements, make them objects of interest, especially in tropical seas. What is known as the "Portugese Man of War," often seen floating on the Gulf of Mexico, is a community of these animals, a compound animal, as it were, in which different parts have different duties. My friend's specimen is so shrunken, that I cannot give the name of the particular Jelly-fish. ....A letter and a specimen came, not from a youngster, but from a lady, but I have written her that she will find a reply in the Boys' and Girls' Column, and I give it here as something quite as likely to interest young people as older ones. The specimen sent by Mrs. "C. H.," though quite dead and dry, was plainly the remains of

Fig. 4.—TICK-TREFOILS.

A Very Large Garden Slug.

She writes that she has found them six inches in length, and has caught as many as thirty in one evening. She says that they get into her cellar, where they feed upon any fruit or vegetable that they may find. She says, that last summer so many got into the well, that it was necessary to have it cleaned, when quantities, dead and alive, were found. A slug may be described as a snail without a coiled shell. No doubt that many of you have found in the woods some of our native snails, which have a large coiled shell within which the animal can withdraw its body and be completely covered and out of sight. When moving, these snails show a long portion, or foot, by means of which they push themselves slowly along, and at the opposite side they project the head, with its horns, which are always in motion, being pushed out and drawn in constantly; the eyes of the land snail are at the ends of these horns or tentacles, as they are called. There are usually four of these, but two of them are not at all prominent. Slugs are like snails, but have no conspicuous shell. There are native slugs, but very small. The one sent is

The Common Slug of Europe,

which was long ago brought to this country and is quite too common in the gardens of the older States. It has a body and "horns" like the snails,

5.—A SINGLE JOINT.

6.—HOUND'S TONGUE BUR.

and though I said it was "like a snail without a coiled shell," it has an apology for a shell. The body of the animal is about three to six inches long, and it has on its back, as seen in figure 2, a scale which answers for a shell. It draws itself together and makes this scale answer as a cover as far as it will go. Figure 2, shows the slug when in motion, and figure 3, the creature while at rest. The slug crawls, like the snail, by means of its "foot," and has at *b* an opening through which it breathes. These slugs are exceedingly destructive in the garden, making sad work with cabbages and other plants. You will wonder how such a soft and slimy creature can do damage. But the slug, soft-bodied though it is, like the snail, has very hard and sharp affairs which answer the purpose of teeth, and can tear and grind up the leaves of plants in a most destructive manner. These teeth, or "plates," as they are called, make very pretty objects for the microscope. It is not difficult to prevent slugs from doing mischief in the garden, as a slight sprinkling of lime around the plants forms a barrier which their soft bodies cannot cross.....I have not said all that I intended to say

About the Distribution of Seeds.

I have shown you various methods by which seeds are scattered, but not all. Scarcely a boy who lives in the country but finds at this season of the year, if he goes through the fields or the edges of the woods, his trowsers legs ornamented by numbers of so called "Beggar's Ticks" and "Beggar's Lice. These not very elegant names are given to seeds, or more properly one-seeded fruits of several different plants, which, by means of numerous minute hooks, cling to the clothing. Some of these stick so closely that they can not be brushed off, but to get rid of them they must be picked off. These not only cling to our clothing, but to

The Coats of Animals also,

and in this manner both domestic and wild animals aid in carrying seeds to a great distance. You may sometimes have annoying illustrations of this, when your horse or the cows at pasture, find a patch of the Clot-bur or Cocklebur; a plant with an oval bur, half an inch or more long, that holds the seeds and is so covered with small hooks that it clings with a firmness that has no doubt tried your patience, if you have had to remove them. I once saw a flock, or rather several flocks, containing 20,000 sheep that were being driven from Mexico to California; each one of these had its tail, legs, etc., loaded with clotburs, thus making a complete invasion of weeds into the new State. So generally are seeds transported in wool, that it is very common to find strange plants near woollen factories. One weed which is over-running a part of Georgia is traced to a factory where Australian wool had been worked. Among our wild plants are

The Tick-Trefoils (*or Desmodium*),

of which we have about 20 different kinds. These belong to the Pea Family, and have small pea-like pods; in some of these the pod has deep notches between the seeds as in figure 4. When ripe, or nearly so, the pods readily break up at these notches, into joints, one of which is shown in figure 5; these being clothed with fine hooked hairs, cling closely to the clothing, and are among the most common of the "Ticks." In some parts of the country the Hound's Tongues (*Cynoglossum*), are not rare; the fruit in these is four little nutlets; each of these, as shown in figure 6, contains a single seed, and is covered with little prickles, each of which has a barb, that enables it to hold fast.

Our Puzzle Box.

CROSS WORD.

My first is in land but not in sea,
My next is in latch but not in key,
My third is in Paris but not in France,
My fourth is in arrow but not in lance,
My fifth is in lake but not in pond,
My sixth is in deed but not in bond,
My seventh is in road but not in path,
My eighth is in anger but not in wrath,
My whole was a tyrant well known to fame,
Study the letters and tell his name.
MINNIE B. B.

ANAGRAMS.

1. I did feast, Sis.
2. Tom's dice.
3. C. scores us.
4. Tint seen.
5. An A to begin.
6. Carted a pipe.
7. Unite,—fall in.
8. See in loss.
9. O race, Poet.
10. Teach, girl.

NUMERICAL ENIGMA.

1. I am composed of 46 letters:
My 33, 9, 16, 22, 13, is a number.
My 2, 38, 41, 39, is what serpents do.
My 6, 30, 34, 5, is a measure.
My 17, 42, 43, 8, 36, is what you are looking at.
My 1, 34, 46, is a little cradle or bed.
My 31, 40, 1, 7, is an article of food.
My 12, 11, is a personal pronoun.
My 23, 14, 3, 19, is to stain.
My 37, 28, is a pronoun.
My 35, 15, 4, 20, is an instrument for measuring.
My 2, 18, 25, 32, is a part of a watch.
My 10, 19, 18, 21, 1, 27, is to ramify.
My 10, 24, 44, 45, 26, is a bend in a sea-coast.
My whole is a command in the Bible. EMMA.

DIAGONAL.

Take the names of three men and three women, place them one above another, so that a seventh name may be read diagonally downward, from upper left-hand corner to lower right-hand corner.
A. L. S.

HIDDEN VERBS.

1. It grieves me to see a teamster lash his horse.
2. I was in Germany in 1880.
3. Never seek shelter under a tree in a thunder-storm.
4. The poor boy was dirty and ragged.
5. I had to wait at the station for half an hour.
6. The pony will reach the stable at 4 o'clock.

RIDDLE.

First. A word the great Creator spoke
When light from night and chaos broke,
And bade its flowing streams we see
The joy and pride of Nature be!

Second. A creature whose e'er busy feet
Delight to rove mid nectars sweet,
And while the fervid sunshine pours,
With care hoards up its precious stores.

Third. A substance that the sweet-breath'd kine
Provide when we may sup or dine,
Drawn from the grassy, dewy mead,
To give us cheer in time of need.

Fourth. Transpose, curtail, add s, you'll find
What deeply oft concerns mankind;
And which *professions* gladly draw
From those they serve by right of law.

WM. HENNESSY.

TRANSPOSITIONS.

(Fill the first blank in a sentence with a certain word, and transpose that word to fill the following blanks in the same sentence.

Example.—He used to —— through the grounds with the —— who was named ——. Wander, warden, Andrew.)

1. The —— went and left me in the ——!
2. I cannot find any —— in the mouth of ——.
3. Do —— ever roost in ——?
4. He killed the —— with his ——.
5. He tried to rake the —— up into ——.
6. He found —— of the —— on top of the ——.

DOUBLE ACROSTIC.

1. A celebrated volcano.
2. A patriarch.
3. An art of the magicians.
4. An Egyptian woman.
5. A city of Edom.
6. An oriental city.

The initials name a Persian queen, and the finals an Ionian city. ISOLA.

ENIGMATICAL BOUQUET.

1. An animal and an instrument of sound.
2. An animal and a child's dress.
3. An animal and an article of dress.
4. Part of a lady's apparel.
5. A lady and what she undoubtedly possesses.
6. The whole of one bird and part of another.
7. What shepherds watch.
8. The rising sun (not sunflower). TOPSY.

Answers to Puzzles in the September Number.

HISTORICAL ACROSTIC.—"*I am monarch of all I survey.*" 1. Ignatius. 2. Antonius. 3. Malachi. 4. Manton. 5. Opie. 6. Newell. 7. Appiani. 8. Robespierre. 9. Crichton. 10. Hahnemann. 11. Olivetan. 12. Fryth. 13. Agostino. 14. Lycurgus. 15. Lysias. 16. Isidorus. 17. Stukely. 18. Udina. 19. Rogers. 20. Vade. 21. Erskine. 22. Young.

NUMERICAL ENIGMAS.—1. The resurrection plant grows in California and Mexico. 2. Christmas holidays.

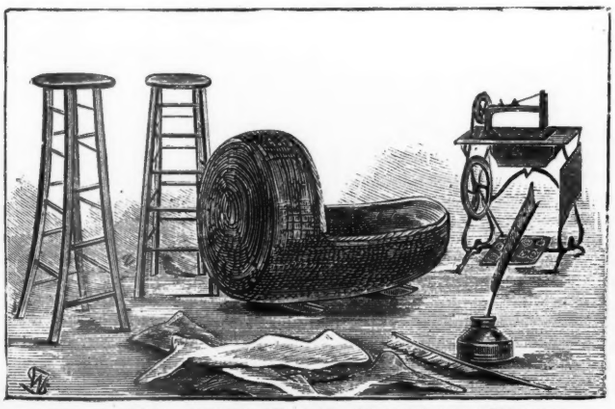
CROSS WORD.—Frangible.

PI.—Ignorance and impudence are inseparable companions.

ALPHABETICAL ARITHMETIC.—
3091)84672549(27393.
(*Key.* TRAINED OWL).

DIAMOND.—
N
PEN
BACON
MYSTIFY
PISTACHIO
GEORGIC
PRIOR
ONE
E

ANAGRAMS.—1. Ascertain. 2. Stimulating. 3. Specimen. 4. Residence. 5. Observable. 6. Imperishable. 7. Masculine. 8. Meritricious. 9. Collieries. 10. Misdemeanor.



SOME CONCEALED IMPLEMENTS THAT ARE USED FOR FARM WORK.

Farming in Old Connecticut.

BY FOUR BOYS.

When we came here, there were two buildings used for barns, that stood a few rods apart, but not in the same line. Under one was a dry stone wall, in a bad, tumble-down condition. The other barn was built on a side-hill, the few stones which supported it, having been placed on the top of the ground, and some logs and short timbers, set on end, gave additional support to keep it from sliding down hill. We first moved them into line, making a building 28 by 62 feet, and then dug out the ground under them, building a good stone wall nearly around under the whole out side. The wall was well laid in lime and cement mortar, we doing all the work ourselves. This gives us a room 24 by 58 feet, for the stable and cellar.

We kept our turnips and cabbages in this cellar, and took them out in fair condition, but we shall build a center wall, and thus make a better cellar. The water worked through the ground some, but we have put an under-drain a few rods above the barn, and now have a nice, dry place, which has cost us so little, that we feel well repaid for our labor. We moved the barns into line by screws and rollers, and found it a good job to test our skill and knowledge of mechanical powers.

In harvesting our turnips, we had two to pull, one to cut, and one to empty baskets. We took an old table into the lot, and as we pulled them, we laid each handful on the table, taking care to swing the tops so that the roots would come handy for the cutter. In this way we gathered twice as many in a day as we could in the usual way. There was no back-aching, as the pullers straightened the muscles at every handful, and the cutter, standing up, could work much faster. A little care is needed in moving the table to accomodate the pullers.

We have high times in catching woodchucks, having in the past two years captured over one hundred big fellows. When we get one, we fill up his hole, and try to keep others from digging, but it requires care and watching, and a good dog to take care of such "varmints" as the woodchucks.

The Doctor's Correspondence.

Some one, and not a youngster, sends a "something" in a carefully prepared cage, saying only that he "caught it in his store." When this mysterious "something" arrived, and the cage, a bored piece of pine, closed by a wire gauze, was opened, I found it to contain the not very common

Mole-Cricket.

This insect is so rare, and its appearance is so peculiar, that, when found, it is sure to excite astonishment. The engraving, fig. 1, shows it of the real size, about an inch and a quarter long; it is of a light yellowish-brown color, and has very short wings. The most striking thing about the Mole-Cricket is its fore-paws, which are wonderfully large and strong, and well adapted to its mode of life, which is to burrow under ground. Its scientific name is *Gryllotalpa*, from *Gryllus*, a cricket, and *Talpa*, a mole. Our species (*Gryllotalpa borealis*) is much smaller than that of Europe (*G. vulgaris*), which in moist grounds is injurious to vegetation. There is, in the West Indian cane-fields, a Mole-cricket which is troublesome, as it feeds upon the roots of the sugar-cane. Ours has never, so far as I have heard, been sufficiently numerous to be troublesome; should it become so, it will be easy to poison it, as they do with theirs in Europe....A few days ago a gentleman left at the office the most

Wonderful Caterpillar

I ever saw. That eminent naturalist, Prof. Riley, happened in soon after, and at once recognized it as one of the very rare *luminous* larvæ, or caterpillars, about which little is known. The creature was in a bottle with a few partly dried leaves. Prof. Riley said that it was likely to live on animal food, so I took it home and put it in a large jar, with a lot of damp moss from the bench in the greenhouse, and also provided it with a box of earth in which were earth-worms. I do not know if it has fed upon anything, and I doubt if I can keep it alive. But you will wonder what is strange about this caterpillar, that I should take such pains with it. In the dark it is one of the most beautiful creatures I ever saw. At the lower margin of each of its rings, just near its feet, is a very bright, light spot, and beneath each ring, on the back, is a band of

Fig. 1.—THE MOLE CRICKET.

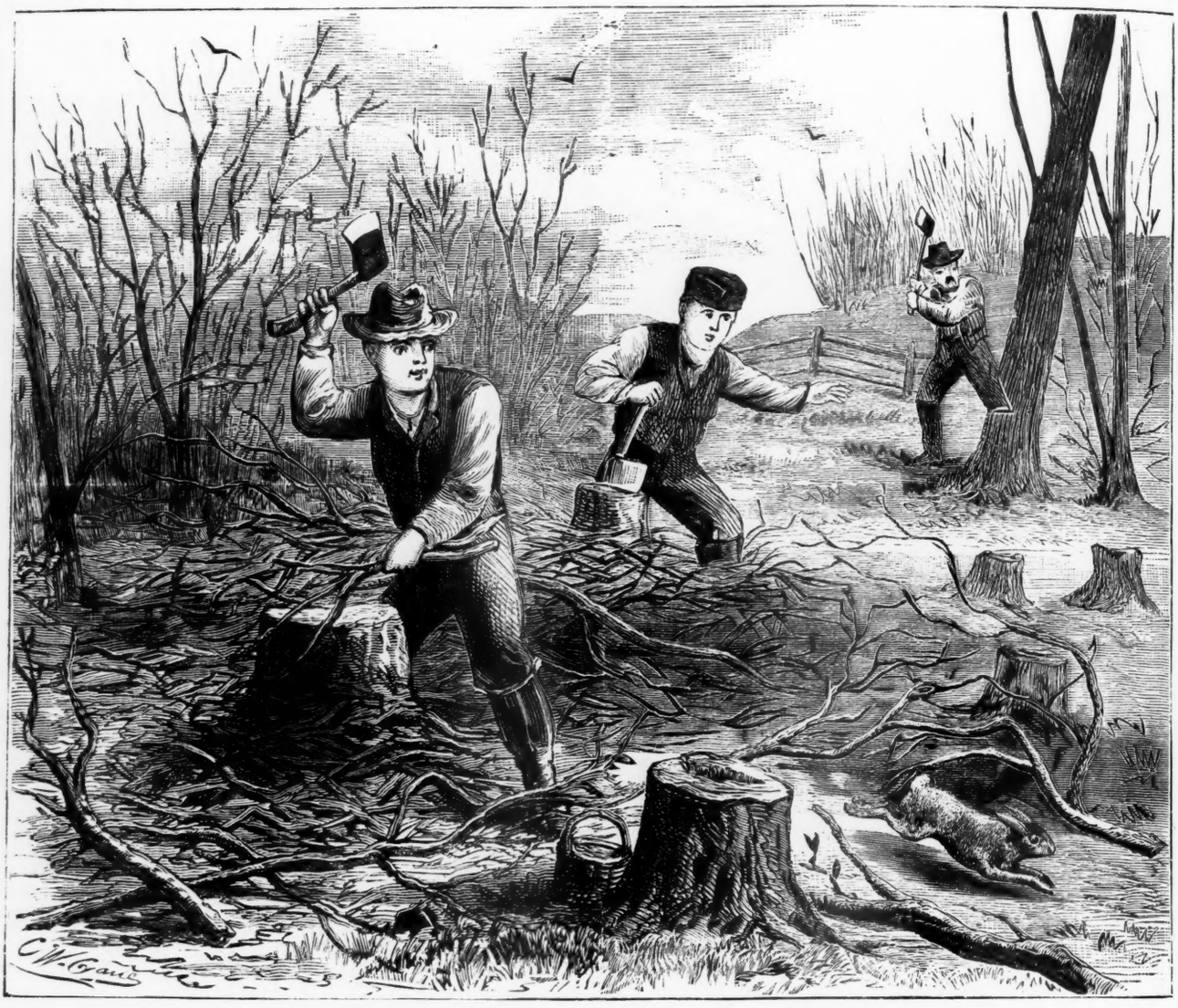
light, as if it were illuminated within, and the light shone through the skin. Anything more beautiful in the way of insect "fire-works," is not easy to imagine. As seen in full light, the caterpillar is about three inches long, flattish, and of a yellowish flesh color. But little is positively known concerning it, though Prof. Riley thinks that it is, probably, in its perfect state, one of the "Click," or "Snap" Beetles. Should any of you be fortunate enough to meet with one of these luminous caterpillars—thus far they have been found in damp cellars—I hope that you will not send them to me, but try and provide for their wants in such a manner, that you can ascertain what their perfect state may be, and then I shall be most glad to have the perfect insect. A week later. This most wonderful caterpillar was placed in an enormous glass jar, holding at least five gallons. It was provided with a box of earth in which were angle-worms, and with moss in which were various insects. Besides leaves of various kinds, including those of the Plantain, upon which the one who brought it, said it would feed; also slices of fruit of various kinds, but I can not discover that it ate anything. In the day time it is perfectly dormant, but in the evening it slowly moves about and shines, though with greatly diminished lustre. I fear that I shall not be able to bring it to the perfect state, and thus find out what it really is.

One of my correspondents in Allegheny Co., Pa., signs herself "Only a Girl." Had her letter been written by "only a man," it could hardly have been more to the point, and she need not be so modest about it. She sends some insects, says that they are very destructive to fruits and flowers; are not known out of her immediate neighborhood; wishes to know if they are common elsewhere, and asks for a remedy. This is all done in such a clear and straightforward manner, that I for once break my rule, not to notice letters that do not give the real name, on the supposition that when she sees this, she will supply the omission, and give her proper name. When I say that the insects she sends, are

The Common Rose-Bugs,

it will remind gardeners and fruit growers, over a wide extent of country, of one of their worst pests. As it happens that there are places where it is not known, I give it in figure 2; the color is of a yellowish-drab, and they appear in great numbers in June, not only on roses, but on almost everything else. They are very destructive to grape vines, eating the blossoms at a great rate, and injure other fruits. The female enters the ground to deposit her eggs; the larvæ, or grubs, live on fine roots; at the approach of cold weather they go down deep in the soil, where they remain dormant all winter. In spring they make a little earthen cell, in which they undergo their changes, and come to the surface as perfect beetles. They last in this state 30 or 40 days, during which they do a vast deal of mischief, and prepare for another brood. Thus far no application has been found to destroy the Rose-Bugs.

Fig. 2.



THE YOUNG CHOPPERS AND THE SURPRISE AT THE BRUSH HEAP.

Cutting the Brush-Wood.

It is an old saying that a child must creep before it can walk. We grow by degrees in almost every thing, and in nearly every direction. The child gradually increases in size—though not so very gradually sometimes—until it comes to the stature of a man or woman. We grow in knowledge—at first knowing but little, the child slowly acquires the information that, if rightly used, will make him wise in mature years. So it is everywhere, "little by little" the great gains are made. It is step after step that the highest mountain is climbed; one brick upon another and the greatest wall is laid. "Little drops of water; little grains, etc."

Thoughts like these come to me as I glance back to my boyhood days, and review in memory the actions and the hopes of the child. Like most farmer's boys I had a liking for the axe, and was always glad to go to the forest, and help make the firewood for the year. It was my ambition to swing the sharpest axe at the foot of the largest tree, and with my own hands bring the giant of the forest, a subdued monarch, crashing to my feet. All boys feel more or less this inborn spirit or longing for doing great things, and it only needs the proper training to transform the ambitious youth into the strong and useful man. It is not the most natural thing for a boy to content himself with the cutting of the brush, when he sees the more *manly* work of felling trees going on before him. I know just how the boy feels, because I was once a boy; and it is not difficult for me to realize the state of mind the boy is in who cuts the "small wood," while the great sticks of timber are being worked out of the body of the tree by the skilled workmen with the saw and axe. But the young woodsman must "creep before he can walk," in the use of his edged tool, and when he is set to the work of "cleaning up the brush," he is having that done for him that is by all means the best. This is a kind of chopping at which the lad can make some considerable headway. The fruits of his labors are easily seen in a pile of fire wood, while if he had attempted to cut a large log in two, he would only have made an ugly looking gash in the log—perhaps also one in his foot!—and a quantity of scattered chips, each one of which would have told a Chopper that the young wood cutter was not equal to his work. "A workman is known by his chips." The cutting of the brush-wood is boy's work, and is just the kind that not only should give an opportunity to train his hands and arms for harder chopping, but also keep him from getting at all discouraged. He can here do a finished work, and have a pile of valuable wood to show for his efforts. This is the "creeping," which, if rightly done, both as to the swing of the little axe, and the spirit in which the work is entered into, that will enable the young chopper to "walk" with a firm and confident step, when the axe of manhood must be put to the root of the great hard-wood trees.

I had an encouragement or inducement to cut brush-wood that made the axe go easier, and this was in the shape of a three-cent silver coin, for every hundred sticks of fire-wood that I made, the wood to be neatly piled, much after the method of the real man Chopper. The first money of any considerable amount that I ever earned was in this "school for chopping." It was such an encouragement that I cleared up all the brush, and had enough money to buy several little things, besides the satisfaction of knowing that I was a fair brush chopper, and could do something for my own support at that work, should it ever be necessary.

There is a great deal of brush for the boys to chop in this world. There are a vast number of things upon the farm, and in fact wherever a boy can be found, that he may better do than to assume to fill a man's place, and make a failure of it, learning only a lesson of disappointment. To the girls it may be said that there is much work for them to do that comes under the head of "cutting small wood." They also should be very patient in doing the work of "creeping," that they may be able to "walk," when the days of childhood are gone.

The engraving herewith given, is the artist's idea of brush cutting. He was once a boy, and he tells me it was his good fortune to have a plenty of fire wood to prepare for the fire. There is much to attract and amuse the sharp-eyed boy, even if he has a task put upon his shoulders now and then. In the picture the stirring up of the rabbit and its escape has added a life to the scene that breaks whatever of the monotony that may have existed in the minds of the young choppers. UNCLE HAL.

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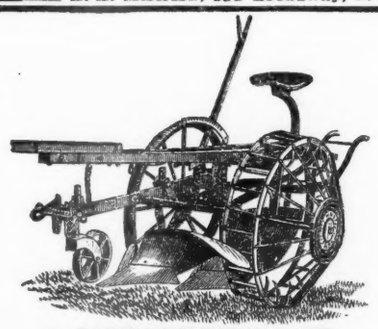

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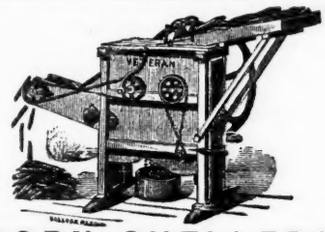

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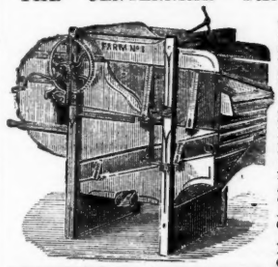

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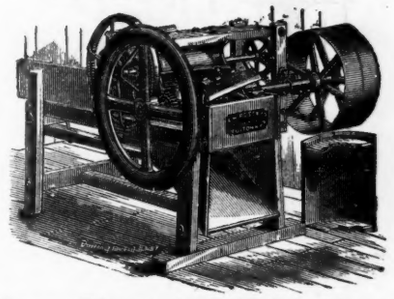

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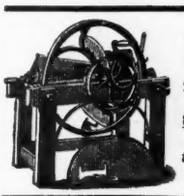

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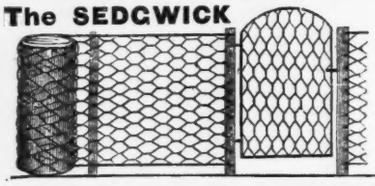

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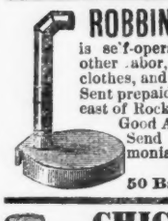

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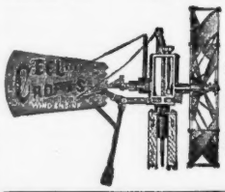

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THE FINEST INSTRUMENT OF THE KIND IN THE WORLD. Improved Automatic Shut-off and Double Expression Swell, Fourteen Notes; Full Sized Reeds, and Five Very Powerful Bellows. The Simplest Mechanical Musical Instrument now in the Market.

In response to the almost universal demand from our customers for a very powerful, simple, **low-priced,** and yet attractive instrument, we have produced the **"ORGANITA."** This instrument has **14 notes** or reeds, the same as all other similar instruments, (except our Organinas, which have 16) and is more **simple** in construction, more **attractive** in design, and much **louder** and more **melodious** than other instruments using paper as a valve. Our Organitas have a fine **black walnut** case, handsomely decorated, **five** very powerful bellows, full sized Cabinet Organ reeds, an improved automatic **shut off,** (which prevents the disagreeable noise heard in all other similar instruments when the end of the tune passes over the reeds), and a most ingenious and effective double **expression swell,** by means of which the tune is greatly varied. We obtain an effect from this instrument, owing to the peculiar position of the reeds and the construction of the expression box, **almost equal** to a regular valve instrument, and **far superior** to any other instrument using paper as a valve. Our Organita is almost as **loud** as a Cabinet Organ, and will play dance music loud enough for any medium sized hall. Its attractive shape, *simple* and *powerful* construction, and the various improvements it possesses over all other paper as a valve instruments, will place it at once, *far* in advance of all competitors, and we warrant it superior to any similar musical instrument extant. Price, in black walnut cases, with selection of music, **only $8.00.**

Over 800 tunes now ready.

SPECIAL TO AGENTS. Wishing an agent in every town we have concluded to offer a sample of the Organita to those who will push the sale for only 5 dollars each. Music 4 cents a foot. This price only applies to Agents. Money refunded if not as recommended.

MASSACHUSETTS ORGAN CO.,
57 Washington Street, Boston, Mass.

MAHER & GROSH,

CUTLERS,

TOLEDO, OHIO.

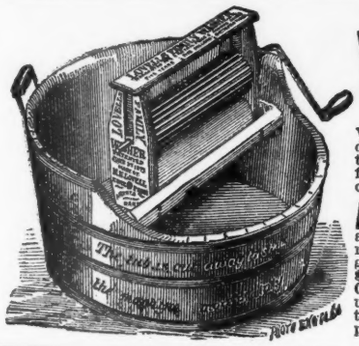
NEW KNIFE.—3-blade, **Stag** or Ebony Handle; long blade, as carefully made as a razor. Price, postpaid, $1. All our goods hand-forged from razor steel, and replaced *free* if soft or flawy. Our Farmers' Extra Strong 2-blade, 75c.; medium 2-blade, 50c.; 1-blade, 25c.; extra strong 1-blade, 50c.

HUNTING KNIFE, $1. LADIES' fine 2-blade, 50c. GENT'S 3-blade, $1.

BUTCHER KNIFE, 6-in. blade, 50c.

40-page List sent free.

DISCOUNT TO DEALERS AND CLUBS.



THE BEST

WASHER

We will **guarantee** the **"LOVELL" WASHER** to do **better work** and do it **easier** and in **less time** than any other machine in the world. Warranted for five years, and if it don't wash the clothes clean without rubbing, we will refund the money.

AGENTS WANTED in every county. We can show proof that Agents are making from $75 to $150 per month. Farmers make $200 to $500 during the winter. Ladies have great success selling this Washer. Retail price only **$5.** Sample to those desiring an agency **$2.** Also the Celebrated **KEYSTONE WRINGERS** at manufacturers' lowest price. We invite the strictest investigation. Send us your address on a postal card for further particulars. **LOVELL WASHER Co., Erie, Pa**

AGENTS WANTED EVERYWHERE to sell the best **Family Knitting Machine** ever invented. Will knit a pair of stockings, with **HEEL** and **TOE complete,** in 30 minutes. It will also knit a great variety of fancy-work for which there is always a ready market. Send for circular and terms to the **Twombly Knitting Machine Co.,** 163 Tremont St., Boston, Mass.

IT PAYS to sell our Rubber Printing Stamps. Samples free. J. M. MITTEN & CO., Cleveland, Ohio.

IT PAYS to sell our Hand-Printing Rubber Stamps. Circulars free. G. A. HARPER & BRO., Cleveland, O.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.

Back numbers of the "American Agriculturist," containing articles referred to in the "Basket" or elsewhere, can always be supplied and sent post-paid for 15 cts. each, or $1.50 per volume.

The German Edition.—All the principal articles and engravings that appear in the *American Agriculturist* are reproduced in the German Edition. Besides these, there is a special department, edited by an eminent German cultivator. Our friends can do us a good service by calling the attention of their German neighbors and friends to the fact that they can have the paper in their own language, and those who employ Germans will find this Journal a most useful and acceptable present.

Bound Copies of volume 39, and of every previous volume back to Vol. XVI. (1857), neatly bound, with gilt backs, Index, etc., are supplied at $2 each (or $2.30 if to be sent by mail). See Publishers' Notes, on last page.

Clubs can at any time be increased by remitting for each addition, the price paid by the original members; or a small club may be made a larger one at reduced rates, thus: One having sent 6 subscribers and $7, may afterwards send 4 names more and $3, making 10 subscribers for $10.00; and so for the various other club rates.

Terms to New South Wales, New Zealand, Australia, Africa, etc.—To several inquirers. Under the latest revision of the Postal Union Regulations the price of the *American Agriculturist* (either English or German edition), including postage *prepaid* through, will be covered by 7 shillings sterling per annum. This applies to the above countries, and to all others embraced in the General Postal Union. The simplest mode of remittance is by Postal Money Orders, payable in London, to the order of Orange Judd Company. These can be readily cashed in N. Y. City at a slight discount, which the publishers will cheerfully pay. For Club rates (postage included), see page 502, and reckon 22 cents to the shilling sterling.

Needles. Please Observe.—That the *American Agriculturist* in June, 1880, page 219, had an item headed "A Needle Is a Wonderful Thing." We then said: "having occasion to use a particular needle for some microscopic work a short time ago, we selected it from a package of needles as put up by the London Needle Co. . . . and as for quality—the microscope sustained the favorable report of the uses of the needle."—Sellers of other needles have quoted the above as having been said of their wares. It was said of and applies only to the needles offered by the "London Needle Co."—and the use of it by the sellers of any other needles is entirely unwarranted, as we know nothing whatever of the "Clark Needle Co." or their needles, never having seen them or commended them. While we perhaps ought to feel flattered that our commendation was thought of sufficient value to be thus *appropriated*, we recollect that there is a very ugly name applied to one who makes another say that which he did not say. We did commend the wares of the "London Needle Company," and did not say anything about those of the "Clark Needle Co."

Live-for-ever, as a Weed.—"A. J. S.," Sandlake, N. Y., finds the plant known as "Live-for-ever," is becoming a pest in his neighborhood, and wishes to know what may be done to prevent its spread, and to get rid of it where it is already established. This plant, also known as "Aaron's Rod," and "Orpine," (*Sedum Telephium*), is becoming a troublesome weed in many places, having escaped from cultivation, and is spreading at a rapid rate. Some years ago we gave an account of the successful killing of a few plants by smothering them. Piles of manure were placed over the clumps, and, of course, they were killed. But this treatment is not practicable where the weed has established itself in a meadow or pasture. If any reader has eradicated this pest, he will do a good service by giving his experience.

The American Pomological Society.

The biennial meeting of this Society is the chief horticultural event of the year on which it occurs. The 18th meeting was held this year in Boston, beginning on September 14th, and continuing for three days. The Horticultural Hall being occupied by the joint exhibition of the Mass. Horticultural and the American Pomological Societies, the meetings were held in the Hawthorne rooms, in the vicinity, while the immense Music Hall was devoted to the exhibition of plants and flowers. The display of vegetables was very fine; that of fruits much inferior to what we are accustomed to see at the annual shows at Boston. The exhibition of plants and flowers was such as few other cities could produce. Among the novelties here were a number of the small single Mexican Dahlias; the richness of their colors will no doubt make them very popular among all lovers of fine flowers.

To the gratification of every one, Col. Marshall P. Wilder was able to preside at the meetings, and in his appearance and bearing showed no trace of the severe accident that occurred a few years ago, and from which it was feared that he might never recover. His annual address showed that mental kept pace with bodily vigor, and was a production worthy of the occasion. Col. Wilder was, as a matter of course, re-elected to the Presidency, as was Patrick Barry, of Rochester, N. Y., to the office of First Vice-President. A Vice-President was elected for each State and Territory and Canadian Province. The former Secretary and Treasurer having declined re-election, Prof. W. J. Beal, Lansing, Mich., was chosen as Secretary, and Benj. W. Smith, Cambridge, Mass., as Treasurer.

The usual discussions were held upon new and old fruits, with reference to a revision of the Society's catalogue, all of which appear in the volume of Transactions. The Horticultural Society gave to the Pomological Society a splendid banquet, which formed a fitting climax to this interesting session. This took place at Music Hall, which was tastefully decorated, and filled by a brilliant assemblage. Speeches were made by the presidents of both Societies, the Governor of the State, and many others, and a hymn, composed for the occasion by the venerable poet, Whittier, was sung.

The attendance at this meeting was large, showing an increasing interest in the Society, and the best feeling prevailed among the members, who scattered to their various and often distant homes, to meet again in Philadelphia, in 1883.

The Wild Garden.

When the first edition of "The Wild Garden," by W. Robinson, F. L. S., appeared, in 1870, we presented it to our readers with an appreciative notice. We now have an entirely new and enlarged edition; the title page of which is so quaintly descriptive that we copy it in full. "The Wild Garden, or our Groves and Gardens made beautiful by the Naturalization of Hardy Exotic Plants; being one way onwards from the Dark Ages of Flower Gardening, with suggestions for the Regeneration of the Bare Borders of the London Parks. By W. Robinson, F. L. S. Illustrated by Alfred Parsons, London. The Garden Office, etc." The author has long fought a good fight against the horticultural extravagancies of the day, especially against the universal bedding system that has prevailed so generally in England. In this country it has not taken so firm a hold. Yet one can see in some private places, and in such public grounds as Forest Hills Cemetery, near Boston, examples of this Fireworks style of horticulture, enough to afford an example of what to avoid. That plants may be massed effectively we are well aware, that an oval "dish-cover," some 20 feet long, thickly planted with Echeverias (or Cotyledons), and illuminated by scrolls of colored plants, has any real beauty in it, we deny. It may excite our wonder, much as does a work of embroidery in which the painstaking worker has wrought a pink dog with blue eyes. But as to the Wild Garden—it does not mean a garden run wild. As the author concisely describes the term—"It is applied to the placing of perfectly hardy exotic plants in places and under conditions where they will become established and take care of themselves."—The term exotic is often misapplied: stove plants are so frequently mentioned as "costly exotics," that in the popular mind, an exotic is regarded as a tender plant from a warm country. In fact an exotic is merely a plant that comes from some other country than our own.

One who looks through the work in question, will find many of the plants of our American woods and fields commended as "exotics" worthy of cultivation in the English Wild Garden. If the Wild Garden is to be commended for many places in England, how much greater claim it has upon our cultivators. Here the lack of garden labor favors the idea. If we can have a plantation where certain plants may be placed and take care of themselves for year after year, it will allow us to enjoy certain plants that can be thus treated, and give us all the more time to give to our borders. There are certain plants that must be cared for, if we are to enjoy them at all, while certain others will do all the better if left to themselves. Many an old and neglected garden, with its clumps of Poet's Narcissus, of "Daffy-Down-Dilly;" great patches of Martagon and other lilies; with Crocusses and Snow Drops, that have made their way into the grass, illustrates what we may expect from a wild garden that has been judiciously let alone. Much in the present work will serve as a guide to the American who would plant a wild garden, but our different climate will allow of a modification of some of the directions, however excellent for the climate for which they are designed. We would say a word as to the illustrations of the present work. We had the pleasure of seeing some of the originals in London last year. They are by an artist eminent in other departments of art, who made these sketches merely from his love for horticulture. They have been engraved in the same exquisite manner in which they were designed.

Sundry Humbugs.

There are some small frauds that seldom get into print; these are of a kind that may be called "from house to house" swindles, not involving any large amount in any one case, yet, no doubt, considerable in the aggregate. One of these came to our knowledge a few days ago, in one of the places in the vicinity of New York—one of those towns that serve as a dwelling place of a large number of those who do business in the city. A neatly dressed person with an affable manner calls at the house and offers to exchange any old fashioned gold jewelry, or even any old silver ware, for articles of more modern style, of which he has, of course, a brilliant display. If an exchange is made, the trader gets *solid* gold and silver for showy plated wares. The old trade of "Old lamps for new," is one in which good women since the days of Alladin's mother have come off second best. Keep your old gold, because it is *old*—ditto old silver—and do not trade in or buy these articles unless the maker and seller are known.

"Does Protection Protect?"

Is a question which those political economists who discuss the questions of Tariff and Free Trade are fond of arguing. In the case of Lotteries, so far as they may be located in this country, our present post-office regulations afford a very complete protection to the people against these meanest of schemes. But this "protection," complete as it may be against the home product, does not "protect" our people against foreign invasion. So soon as the stringency of our post-office rules began to shut out these lottery people from the use of the U. S. Mails, some of the more enterprising of them

"Went over the Border,"

and from the other side of the line can, with impunity, flood the U. S. Mails with their schemes. We have on several former occasions noticed the Lottery Shop at St. Stephens, New Brunswick. It is, in fact, as many other things are on the other side of the line, a "Royal" affair. Indeed an Ex-police-something stands as the figure-head of it. There seems to be a screw loose somewhere. In this case we at least believe in

"Protection to American Industry,"

and on general principles hold it is not right that American swindlers should be shut out of the U. S. Mails, while Canadian swindlers have free use of them. This should be remedied—not by admitting the natives, but by excluding all equally. The question is an international one, and not easy of adjustment. We have in the course of a year many

Inquiries that are Difficult to Answer.

There are people in every large city, who advertise great things in distant papers, who are entirely unknown in the business circles of the cities where they claim a residence, and are generally not to be found in the Directory. Such parties are waifs that float upon the community, and have no root—no abiding place. They usually have an arrangement for getting such mails as may come to them. Some of these chaps do not even have an office with a "hole in the door" for letters, but selecting some building that contains many offices, they contrive to be on the stairways when the letter carrier makes his rounds, and thus get their letters. We have before us a letter asking about three

"Investment Companies,"

"Syndicates," and the like. We can only infer that these parties have made great offers—at a distance, and feel very sure that the large Western City from which the inquiry comes offers safer opportunities for investment than can these parties in New York.

The Batteries Outdone.

It seems that Electricity, in its various forms of galvanism, magnetism, electro-magnetism, is an exhaustless resource for quackery. We have done our share in killing off the absurd so-called "Batteries"—of no more virtue than a copper cent or a five-cent nickel, as a remedial agent. But "electricity" turns up in varied forms. We have before us the announcement of a "Galvano-Electric Plaster." It has "an insulated wire running the full length of the plaster, imbedded in the surface of the plaster, prevents it from becoming a shapeless mass," all of which is a good thing to do. But we read, "one plaster can be worn by a number of persons before it gives out." No, we thank you. For have we not read of one of these electro-galvanic things, that it "draws out" all sorts of diseases, and of another that it "sends in" all sorts of cures. If we wear your old plaster that has been worn by a cross and fidgety person, what will be the effect upon our own sweet temper? None of the plasters that "can be worn by a number of persons" for us. Besides, when we called at your shop, and you showed us the heart-shaped things, did you not tell us that "the *Nitrogen* from the body would cluster around" these copper and zinc thingamies? Now, we don't want the "Nitrogen" in *our* body to "cluster," or to be cutting up any such capers. ....The old Inman Recipe dodge, offering to give a prescription for all sorts of seminal weaknesses, is now being played in the form of an

Opal Balm for the Complexion.

It is the old story over again. The recipe calls for many things that are to be had, and one or two that are not procurable. Directions are given for its preparation that can not be followed. The old story is repeated. "It is of the utmost importance, in preparing the recipe, that the juices of the flowers should not be evaporated at too great a heat"—and all the rest of the balderdash, and of course winds up by offering the stuff by mail, "all ready, and prepared for use." It is important to know that it will be sent "covered with common brown

paper"—so that "no other person could suspect what the package contained."....It is curious to observe how the old things that we supposed were dead past recovery, will after a while turn up anew. As a striking illustration of this, here is

The Butter Compound,

which we have not before heard of for years, sent us, of all places in the world, from Boston. It is the old story over again. The stuff proposes to produce "a pound of butter from a pint of milk." A town in Ohio was for many years the headquarters of this Butter Compound, but now it is advertised by a chap in New Hampshire. There is probably no law that will compel the chap to eat the stuff after it is made.

The Official List of Frauds.

In January last we gave the list of those parties and firms to whom, by order of the Post-Master General, payment of Money Orders and the delivery of Registered Letters were prohibited. The list has been greatly modified since the beginning of the year, and as here presented is complete up to the time of going to press, so far as the official records go. But there are a vast number of minor swindles that are not of sufficient importance to be officially recognized, and those who are in the list are frequently changing their names.

Allen, H. D. P., New York.
Ballard, P., 240 Greenwich-st., New York.
Barrett, F., 2, 4, 6, College-place, New York.
Bartelle, B. C. & Co., Gloucester, N. J.
Baxter & Co., 7 and 17 Wall st., New York.
Benedict & Co., New York.
Bennington, A. B. & Co., Lansing, Iowa, *alias* Jace Marks
Benton, D. V., Laramie City.
Boardman, R. M., Lou'le, Ky
Bornio & Bro., N. Orleans, La
Brain, John C., New York. *alias* Excelsior M'f'g Co. Sheffiel d Fire-arms agency.
Brookes, Chas. O., 128 West-st., New York.
Buchanan, Prof. John, M. D., Phila., Pa., *alias* Nat'al Eclectic Medical Asso n. Eclectic Med l Col'ge of Pa. Am. Univ'y of Philadelphia. Univ'y Coll'e of Pharmacy.
Burrow, John, Bristol, Tenn.
Burtnett, H. A., New York.
Burton, B. H. & Co., Chicago, Ill.
Cateley, Alfred, New York, *alias* Fam'y Sew'g Ma'. Co. Comb'n Sewing Mach'e Co. Standard Sewing Mac'e Co.
Cautlin, John & Co., Chicago.
Chase, A. & Co., N. Haven, Ct.
Clark & Co., *alias* Silver Minding Co., New York.
Clark, J. G. & Co., Chicago, Ill., *alias* L. G. Clark. L. D. Herrick.
Combination Sew'g Mac. Co., *see* Alf. Cateley, N. York.
Commerford, T. J., N. York.
Commonwealth Distribution Co., Louisville, Ky., & N. Y.
Conlon, J. P., 599 Br'way, N.Y.
Cosmopolitan Stamp Co. *alias* Philadelphia Stamp Co., Camden, N. J.
Creighton, W. C., *alias* B. H. Porter & Co., New York.
Crest, John, Elkhart, Ind., & Augusta, Mich., *alias* W. J. Hill. C. H. Walker. C. Wade.
Dayton, John, 1212 Broadway, *alias* R. Field & Co., N. Y.
Doe, John, New York. *alias* Arnould, Jas., 151 Eldridge-st.,
Bell, Jas. Belmot, David, 133 Division-st.
Clark, M., 50 Delancey-st.
Clemens, M., 1681 First-av.
Frenks, An., 151 Eldridge-st.
Hudson, Jas., 1681 First-av.
Kent, Thomas A. Lambert, 13 Suffolk-st.
Muller, Jas., 50 Delancey-st.
Muller, L. Rand, Thos., 88 Allen-st.
Duff, J. Duff, J. & Co., 42 Nassau-st., New York.
Duffree, Manning, *alias* Bell, C. & Co., 1215 Br'way, N. Y.
Edgerton & Co., Camden, N.J
Elias, Ellis H., *alias* Russell & Co., New York.
Emerson, Jos. Emerson & Goss, 180 Broadway, and 35 Fulton-st., New York.
Evarts, Barnes & Co., N. Y.
Excelsior Mfg. Co., *alias* Sheffield Fire-arms Agency, Chicago, Ill.
Family Sewing Machine Co., *see* Alf. Cateley, N. York.
Field & Co., 1212 Br'way, N.Y.
Foxwell, Chas. & Co., N. Y.
Frankford School Fund Lottery, Lou'le & Glasg'w, Ky.
Garcia, I., 187 Ex-pl., N.O., La.
George, Jas. W. & Co., N. Y.
Glore, W. Scott, Louis'e, Ky.
Goldsmith, J. & Co., St. Stephens, N. B., Canada.
Goldwater, Mich'l, Prescott, Arizona.
Gray, Wm., care of Mr. Sacks 506 Fifth-st., New York.
Gr. West'rn Distribution Co., *alias* Matthews & Co. Kunnecke & Co, Cheyenne, Wy
Gustavus, E. & Co., *alias* F.E. G. Lindsay, Holston, Va.
Hall, H. J. & Co., Baltimore, Md.
Hamilton, Thos. J., *alias* Dr. Mattison, New York.
Hamilton, J. B. & Co., N. Y.
Harris, James, care of Mr. Grampps, 253 E. Ch.-street, New York.
Harris, O. W., New York.
Hegly, A., *alias* Michael & Co., Atlanta, Ga.
Henry, J. C. & Co., *alias* Clarence W. Miller, Glens Falls, N.Y., & Chester, Pa.
Herrick, D. P. & Co., N.York.
Hill, W. J, *alias* C. W. Whitney & Co., Elkhart, Ind. Augusta, Mich., and Battle Creek, Mich.
Hubbell, W. F., New York.
Hudson, Harry B., Chicago, *alias* Hudson, Strong & Co.
Hull, H. H., *alias* Unit. States Agency, Mt. Winans, Md.
Hunt, Chas. E. Hunt, Nettie W., Philadelphia, Pa.
Hurlburt, Wm. H., *alias* Western Gun Co., Chicago, Ill.
Jones. Albert W., *alias* R. M. Boardman & Co., N. Y.
Jones, Edgar W., Ashland, Mass., and South Framingham, Mass., *alias* Harry J. Littleton & Co. Union Purchasing Agency. Union Publishing Co. Magnetic Watch Co.
Jorda & Puig, N. Orleans, La.
Joyce. John P., Covington, Ky
Juvenile Steam Engine Co., Chicago, Ill.
Kendall, L. A., Boston, Mass. *alias* Ashman, L. A. Bay State Organ Co. Eastern Gun Works. Enterprise Publishing Co. Home Delight Co. Hub Manuf'g. Co. Hub Watch Co. Inventors' and Manufacturers' Assoc'n. Japanese Curiosity Co. New Eng'd Scientific W'ks. New England Manuf'g Co. Paris Art Co. Parisian Photograph Co. People's Paper Publ'g Co. The Welcome Guest
Kennucke, F., Kennucke, & Co., The Messrs., Cheyenne, Wyo.
Kendrick, Prof. R., Chicago.
Kent, Thomas, New York.
Kentucky State Lottery, Covington and Louisville, Ky. and New York.
Knox, H. & Co., Chicago, Ill.
Kosboth, R. J., *alias* Mutual Stock Companies, Nos. 1 and 2, New York.
Kratzer, D. A., Burlington, Ia.
Lawrence & Co., New York, *alias* Adams, Brown & Co. Allen, Jordan & Co. Barnes, Garrison & Co. Duff Wm. D.
Lee, Wm., care of Mr. Stephens, 252 E. 3d-st., N. Y.
Lee, Wm., care of Mr. Huff, 127 Broome st., New York.
Livingston University of America, Charleston, W. Va.
Lindauer, Chas. F., 184 Mercer-st., New York.
Littleton, Harry J. & Co., Ashland, Mass., and South Framingham, Mass.
Long Island Shirt Co., Brooklyn, N. Y.
McCall, W. T., New York.
McCauley, S. A., 35 Broadway, New York.
McKay, Hugh. McKay, Hugh & Co., of St. Stephens, New Brunswick, & Calais, Me.
Magee, John W., Laramie City, Wyoming.
Magnetic Watch Co., Ashland, Mass.
Magnetic Watch Co., South Framingham, Mass.
Marcotte Co., 22 New Church st., New York.
Marks, Jace, La Crosse, Wis.
Martin, B. H. & Co., Chicago.
Martin, Geo., 172 Franklin-st., New York.
Mattison, Dr., *alias* Thomas J. Hamilton, New York.
Miller, Clarence W., Glens Falls, N. Y.
Muller, L., New York.
Murray, France & Co., Louisville, Ky.
Murray, Rev. James, D. D., Haddonfield, N. J. *alias* The Livingston University of America.
Mutual Stock Companies Nos. 1 and 2, New York.
Napa, E. G. & Co., Chicago.
Napa, Victor & Co., Chicago.
Nassau Banking Co., N. Y.
Nathan B., 179 and 838 Broadway, New York.
National Banking Co., N. Y.
Noelke, Chas. D. S., 238 Grand street, New York.
Paris Book and Novelty Co., Boston, Mass., Rockland, Mass., and Chicago, Ill.
Paris Importing House, Chicago, Ill.
Patroni, Giovanni, Philadelphia, Pa., and Camden, N. J.
Pattee, J. M., Manager, Cheyenne, Wyoming.
Platt, L., *alias* Wm. Tower, Chicago, Ill.
Perkins, Howitt, 11 Park-row and 297 Greenwich st., N.Y.
Pike, Marshall S., Cheyenne, Wyo. Terr.
Philidelphia Stamp Co., Phila., Pa., and Camden, N. J.
Porter, W., New York.
Rand, B., 62 Harrison-st., NY.
Rand, S., care of Mr. Warren, 78 Chrystie st., New York.
Rand, Thos., New York.
Remis, I. G. & Co., Chicago, Ill.
Richmond, M. J., Cov'n, Ky.
Robb, Byron H., Cincinnati, O., *alias* American and European Secret Service Co. Amer. Detect'e Newspaper. Co-operative Commer'l Co. Commercial Reporter Newspaper. Electro-Magnetic Brush Co. Incina Co. Monitor Lamp Co. Monitor Publishing Co. Singapore Tobacco Co.
Royce, J. M., Grafton, W. Va.
Royal Manufacturing Co., Brooklyn, N. Y.
Russell & Co., New York.
Sherman & Co., Mars'll, Mich
Silver Mining Co., N. York.
Sine, L. D., *alias* L. D. S. Bishop, Cincinnati, Ohio.
Slocumb, E. Ellsworth, Boston, Mass., Chicago, Ill., Rockland, Mass., *alias* Agents' Union. American Book Co. Crameo, E. G. Eels & Co. Eels, D. P. & Co. Royal Piano Co. Solar Watch Co. Star Manufacturing Co. Suydam, D. P. Williams, P. W. & Co.
Strong, L., Chicago, Ill.
Smalley & Gale, 35 Broadway, New York.
Smith & Son, 17 N. Church-st., New York.
Smith, Geo. R., Coving'n, Ky.
Smith, L. J., 9 Astor-pl., N. Y.
Smith & Brown, 97 Chrystie-st., New York.
Sprague Man'fg Co., Chicago.
Standard Sewing Mac'ne Co., *see* Alfred Cateley, N. York
Taylor & Co., New York.
Thatcher, Belmont & Co., N.Y.
Tomlinson, James A., N. Y.
Tully, J. F., 1215 Broadway, N. Y., *alias* C. Bell & Co.
Union Publishing Co., Ashland, Mass.
Union Publishing Agency, South Framingham, Mass.
Union Silver Plating Co., Cincinnati, Ohio.
Upington, G., New York.
Veadero, Ciriaco, 69, 71, 73, Broadway, New York, *alias* Martenez & Co. Castillo, Emilio M.
Wade, C., Elkhart, Ind., Augusta and Battle C'k, Mich. *alias* C. H. Walker.
Waterson, Henry G. Waterson, F. G., Calais, Me.
Wallace, J. W. & Co., Chicago
Webb, Samuel, 126 and 167 Broadway, New York. *alias* Wilson, Wm. S. Wilson, Sam. Luthy & Co.
Webber & Co., *alias* National Art Co., Cincinnati, Ohio.
Whitney, C. W. & Co., Glens Falls, N. Y., & Chester, Pa.
Wight, T. Potter & Co., N. Y.
Wilcox & Co., Windsor, Ohio.
Williams, Peter W., Chicago, *alias* E. G. Napa & Co. Victor Napa & Co. Paris Importing House. Paris Book and Novelty Co. John Catlin & Co.
Williamson & Co., 559 Broadway, New York.
Wilson, David, 909 First-ave., New York.
Wilson, J. C., Ladonia, Texas *alias* A. J. C. Wilson.
Wintersmith, R. C., Louisville, Ky.
Zsoich, Theodore, 23 Park-row, & 861 Broadway, N. Y.

The Butter and Poultry Market.

Messrs. E. & O. Ward, if not the oldest, are among the oldest and most experienced houses in the produce commission business in the city. We occasionally call upon and discuss with them matters of interest to producers. Their views of the Butter Market near the end of September may be stated as follows:—

"It seems to us that Dairy Butter should now come forward to meet the full requirements of our market at present prices, or even at a little reduction. It would not take a very large excess of supply to cause a decline, but to hold for higher prices is a question which each should decide for himself. The situation is about as follows:—Our market is in rather short supply. The amount to come forward does not probably differ essentially from that of last year. The butter now held on cold storage here and elsewhere is quite in excess of last year, or of any previous year. During the winter our best table butter will be supplied from the Western creameries, and from *new milch cows fed heavily on grain*. 'Oleomargarine' will be preferred to *old flavored butter*, and can be obtained at a cost of from 17c. to 20c. per pound. Farmers should consider these facts, and do what seems best for their own interest."

A Hint to Shippers of Poultry.

"As the season advances, the demand for live poultry diminishes. Chickens should now be *well fattened*, and shipped so soon as the weather becomes sufficiently cool, as much better prices are usually obtained in early autumn than later in the season. Be very sure that the animal heat is *all out* before packing. Pack in small boxes, using plenty of clean and sweet straw. Do not draw the poultry for this market. Ship so that the packages will reach our market about the middle of the week."

Tasmania—Its Climate and Prosperity.—"M. D.," writes from Hobart: "Our beautiful island is one of the most favored of the Australian colonies, possessing a perfect climate, glorious scenery, and a fertile soil. There is scarcely a day throughout the year on which, even invalids may not take out-door exercise. Not possessing gold fields as in Victoria, we have not made the same rapid progress. Still the value of property is steadily rising and the population has greatly increased within the last ten years. For Tasmanian sheep (Merinos), enormous prices are given by the large flock-owners of Queensland, Victoria, and New South Wales, and Tasmanian wool has deservedly a high reputation."

Dairy Stables.—It should be understood at the outset by every dairyman, that butter making begins at the stable. This includes the feed, and the care which the cows there receive. The very best Jerseys will not produce the best butter unless they have first-class care in the stables. The stalls must be clean, and the animals kept neat; even the air of the stables must be free from foul odors, if the best dairy products are to be obtained. When milk is once contaminated, and it is a wonderfully active absorbent of gases, nothing can be done to make it perfectly pure again. More butter is spoiled "at the pail," than during any other process through which the milk and butter passes. The udder is not properly cleaned, or the hands of the milker are foul, and in many ways the milk receives that which ever after remains to contaminate.

Whitewash for Outside Work.—Every spring we have numerous inquiries for a "whitewash that will not rub off," and now these begin to come in autumn. Ordinary lime wash will rub off and in time is washed off by rains. There are two methods of preventing this: One is, to add something to the wash, like glue, that will hold the particles of lime in place, and the other is to add something to the wash that will change the slightly soluble lime into an insoluble compound. A quarter of a pound of glue, soaked in cold water, and then dissolved by heat, may be added to each pailful of whitewash. If fat of any kind be added to the lime while slaking, a lime soap is formed which does not wash off. When slaking lime for a pailful of wash, add a pound of tallow or clean fat of any kind to the hot and slaking lime, and thin with hot water. The Treasury Department wash, used on Light-houses, and other Government buildings, was given some years ago and is now repeated. Place half a bushel of freshly-burned lime in a barrel and slake with boiling water; strain and add a peck of salt dissolved in water; boil three pounds of rice flour in water to a thin paste, and add it to the lime; soak a pound of good glue in cold water, and when soft dissolve by the aid of heat, and add this, with a pound of Spanish White to the wash. Thin to the proper consistence with water. The wash is to be applied warm. Whitewash may be colored with Venetian Red, Umber, or Indigo, adding enough of either to give the desired tint.

When to Plant Asparagus.—"M. H. M.," Elkhart, Ind. The books, as a general thing, say plant in spring, and the sellers of the plants rarely offer them until that season. But in localities where the autumn is long and mild there is no reason why the plants should not be set out then, and there are many reasons why they should be, if the plants are at hand. In all localities save where the winter comes on at once, and is very severe, autumn planting is preferred. The fact that the soil is usually in better condition in autumn, and is pleasanter to work in, and that the work is not so hurried as in spring, are strong points in favor of planting in autumn. Where the season is mild and prolonged, the Asparagus roots, as the gardeners say, "get a good hold of the soil," which is another way of saying that feeding roots are formed, and the plants are all ready to go on and grow with the first opening of spring. This preparatory work must be done before any growth can take place. If plants can be had, we should plant in autumn, if local conditions allow.

Catalogues Received.

Some establishments are so extensive that they issue a separate catalogue for each department. Where this is the case each catalogue is noticed under the heading where it belongs. If the name of a firm or person is mentioned more than once in the same list, it indicates that it issues more than one catalogue.

NURSERYMEN AND DEALERS IN SMALL FRUITS.

JOHN BURR, Leavenworth, Kans.—A special description of a new Kansas Grape, "Early Victor."

BUSH & SON & MEISSNER, Bushberg, Jefferson Co., Mo.—We have often noticed the completeness and comprehensiveness of their catalogue, and each half-yearly appearance only increases our appreciation of its excellence.

ELLWANGER & BARRY, Rochester, N. Y.—This is the 25th edition of the Descriptive Catalogue of Fruits, which gives in brief the leading characters of those considered worthy of cultivation. The notes of the newer varieties, in the preface, are of much value to the novice.

B. B. HANCE, Agt., Red Bank, N. J., makes special wholesale offers of fruit and ornamental stock at the Rumson Nurseries.

GEO. S. JOSSELYN, Fredonia, N. Y.—A list of grape vines and small fruit plants, accompanied by a colored engraving of "Fay's Prolific Currant" noticed by us in September of last year.

J. T. LOVETT, Little Silver, N. J., sends a full catalogue with many novelties, and a special account of the "Manchester" strawberry, described by us last August.

THOMAS MEEHAN, Germantown, Pa.—This year Mr. Meehan gives, in one comprehensive list, properly subdivided, some idea of his immense stock in every department.

RANDOLPH PETERS, Wilmington, Del.—This Nursery has long been noted for its attention to peach trees, but it is quite as well up with the novelties in other fruits.

STARK & Co., Louisiana, Mo., offer at the Pike Co. Nursery, established over 40 years ago, a full stock with many things peculiar to the locality.

JAMES B. WILD & BROS., at Sarcoxie, Jasper Co., Mo., have not only fruit and ornamental hardy stock, but greenhouse plants. Besides they advise their patrons to read the best agricultural and horticultural papers.

SEEDSMEN, BULB DEALERS, AND FLORISTS.

As a rule, seedsmen offer imported, or Dutch Bulbs in their season, and so many now offer florists' plants that it is convenient to put Seedsmen and Florists in one list.

B. K. BLISS & SONS, No. 34 Barclay St., New York City, besides the usual Dutch Bulbs, offer hardy flower roots, small fruits, seeds for fall planting, and a long list of florists' requisites, including dried flowers and grasses.

WM. E. BOWDITCH, 645 Warren St., Boston, Mass., presents his catalogue in the form of the "American Florist and Farmer," which is more a magazine and less a catalogue than such periodicals usually are.

ELLWANGER & BARRY, Rochester, N. Y., in their descriptive catalogue of Select Roses, give not only a list of the best varieties, but a treatise on rose culture, which is very complete.

PETER HENDERSON & Co., No. 35 Cortlandt St., include in their autumn catalogue, not only all the bulbs of the season, but plants for winter-flowering, seeds for fall sowing, small fruits and florists' requisites. Very full with novelties in every department.

HOOPER, BROTHER & THOMAS, Westchester, Pa., in their "Handbook of Beautiful Flowers," offer an immense variety in every department, and the whole is abundantly illustrated.

AUGUST ROELKER & SONS, 44 Dey St., N. Y., offer a full list of imported bulbs, with a large stock of florists' supplies.

GEORGE SUCH, South Amboy, N. J.—To a lover of plants it is a real pleasure to turn over the pages of a catalogue like this, where the choicest of the world's floral treasures are recorded in a style beautiful in its exquisite neatness and accuracy. If any European catalogue excels this, either in matter or manner, we have not seen it.

STOCK, IMPLEMENTS, AND MISCELLANEOUS.

W. S. BLUNT, No. 94 Beekman St., N. Y., sends a catalogue "supplementary" to one noticed some months ago. Besides his own "Universal Force Pumps," he offers various other contrivances for raising water and distributing it about after it is raised, all of which is abundantly illustrated.

M. CARTER, Plainfield, Ind.—An illustrated catalogue of his "Automatic Gate." If Mr. C. or any one else has a gate that will be "automatic" in winter as well as at other seasons, he has a fortune within his reach.

A. B. COHU & Co., 197 Water St., N. Y.—To carefully look through this catalogue with its copious illustrations, of nearly every implement or machine used in the agriculture of our own country and others, would go far towards giving a farmer's boy a liberal education in his pursuit. This notice is full, but so is the catalogue.

THE HARTFORD SANITARY PLUMBING Co., Hartford, Conn., set forth the superiority claimed for their "Patent Glass Water Closet," in a neat illustrated pamphlet.

JOHN Q. MAYNARD, 95 & 97 Liberty St., N. Y., is agent for various "Labor-Saving Specialties," to be used in different mechanic arts; such as hoists of various kinds, devices for pipe-fitters, carriage-makers, etc., etc., all illustrated.

MORRIS LITTLE & SONS, England, with an agency in the Tribune Building, N. Y., present a vast amount of testimony, gathered in various countries, as to the efficacy of their "Non-Poisonous Sheep Dip and Cattle Wash."

F. S. PEER, East Palmyra, Wayne Co., Pa., issues a neat catalogue of his Jersey Cattle and Cotswold Sheep, with pedigrees.

FARMERS' MANUFACTURING Co., Cincinnati, Ohio.—Offer their "Twin Dasher Churn," and illustrate it.

American Celery.—An English gentleman, much interested in horticultural matters, being about to return home after a brief visit to this country, asked us to put him in the way of procuring various garden appliances that he would like to take back with him, and also various seeds. Among other seeds he asked for some of our best varieties of Celery, as he had found that vegetable, even quite early in the season, solid and crisp, and greatly superior to that at home. The fact is, that there is very little Celery seed sown in this country that is not imported from England, and other parts of Europe, and the superiority that is found in our Celery does not consist in the variety, but in the manner of growing it. In England, except by a very few market-gardeners who have learned better, Celery is still generally grown in the old way of planting it at the bottom of a trench, two feet or so in depth. As the plants grow, the earth is from time to time filled into the trench. The upward growth continues, but a good share of this is at the expense of the lower part of the stalks, which are robbed of their nutriment, and become hollow or "piped." In our method, followed by all except the few who adhere to old ways, the celery stalks are first allowed to make a strong, healthy, and solid growth. When the growing season is about over, these stalks are earthed up and, being excluded from light, they become perfectly blanched, and at the same time that they are deprived of their green color, they also lose their strong flavor, and we have the perfect solid product of a mild flavor, and so much superior to the common kind, that our friend supposed it to be a peculiar American variety.

The New York Horticultural Society.—There are two Societies in this country that do not believe in delay in their publications. One of these is the Horticultural Society of Western N. Y. This, though it holds but yearly meetings, issues a full report shortly after the session is over, and while the matter is still fresh. The New York Horticultural Society holds monthly meetings, and instead of waiting to give a voluminous "Yearly Report," in its announcement for each meeting publishes what was done at the meeting of the preceding month. We thus have not only an account of the exhibits, and the awards of prizes, but when an essay has been read before the Society, that is given in full. As a consequence, when Peter Henderson, E. P. Roe, Samuel Parsons, or any other member, reads a paper, those who were not present are enabled to know very soon after, what was said, instead of the usual waiting well into the next year for the information. We do not know how those who are not members, can get these interesting reports, but the energetic Secretary, Mr. James Murkland, No. 12 Cortlandt St. will inform them. This Society needs more than anything else a proper abiding place—a hall, and we are assured that that will come in the near future.

American Apples in England.—Messrs. Materne & Mayer, who last year kept us advised of the apple market abroad, inform us that the exportation is, at this season, already active. On Sept. 29th, the sales at Liverpool amounted to 4,000 barrels, and that on account of heavy arrivals the market has a downward tendency. On that date sound fruit sold as follows: Baldwins 12—17*s*, Greenings, 10—14*s*, N. Spy, 13—15*s*, King of Tomp. Co., 16—21*s*, Fall Pippins, 8—12*s*. European correspondents advise caution in shipping Fall Pippins, no doubt because they decay very quickly.

The Agriculturist in Tasmania.—In a speech before the Agricultural and Pastoral Society of Tasmania, Sir Henry Lefroy, Governor of the Colony, is reported as saying: "He did not think that all was done here to develop agriculture that might be done, and especially referred to the desirability of the Society disseminating knowledge by means of some such excellent publication as the *American Agriculturist*."—His Excellency was afterwards informed that the *American Agriculturist* had already a large circulation in the colony, a statement that our subscription books will amply substantiate. By the way, we may say that we receive complaints of the large price charged by the news dealers for this Journal. The remedy for this is for our Tasmanian friends to form clubs and send subscriptions directly to this office.

Poultry Notes.—Many persons let their poultry roost on trees during the summer months. This is well, if care is taken to get the birds securely housed before severe weather sets in. If they are allowed to remain out-doors amidst frost, sleet, snow, cold rains, and howling, bitter winds, they will suffer greatly; their combs and wattles will freeze and many will sicken and die from exposure. There should be a good supply of gravel, shells, road dust, etc., put away as "poultry supplies," to be used during the time that fowls have to be confined to close quarters. Poultry, like other live stock, pays if properly cared for. Both profit and humanity demand of us good care for our fowls as of all other stock. J. R. B.

Privy Contents.—P. Richmond complains of the unpleasant task of emptying the vaults, and asks what can be done to make the operation less offensive to the neighborhood. A historian of Ireland had a chapter on snakes. It read "There are no snakes in Ireland." A history of our friend's village should read, "We have no privy vaults to be emptied." We have again and again shown how easy it is to make an earth closet, and have described its advantages. It is a daily comfort, and all trouble with the contents of the vault is avoided. The value of earth-closet manure is less than it was at one time supposed to be, though it has a value, but for the sake of the greater comfort it is better to look to some other source for fertilizers. The liquid contents of the vault may be mixed with dry earth, and as they are removed, placed where they can be covered with dry earth. Then fill up the vault and contrive some form of an earth closet, of which we have given several descriptions in former volumes. The ordinary village vault and its attendant discomforts should be abolished.

Rhubarb Culture.—"A. S.," Coulterville, Ill. We do not understand your want of success. We have a bed that was put out 10 or 12 years ago; this, with an annual manuring, yields so abundantly that we have not cared to make a new bed. Pieces of old roots, with a bud to each, are set in highly manured soil, four feet apart each way. The plant starts so early in the spring that it is well to make the planting in autumn. An old root, or clump of roots, will divide into as many pieces as there are buds. It is a mistake to suppose that the plants need to be re-set every three years. Besides our own, we know of a plantation—that yields well, that has been out about 20 years. Each fall a heavy dressing of manure should be put on, and this should be forked in when the soil is dry enough in spring. During the summer cut away the flower stalks as fast as they show themselves. It is possible that you have a poor kind. The "Linnæus" is as good as any; roots of this may be had at the nurseries; or as it comes true enough for family use from the seed, a sowing may be made in the spring to get young plants, which, when two years old, may be set in a highly-manured bed.

Leaves from the Woods make the very best of litter; they absorb a great amount of liquid fertilizers, and furnish in themselves large per cents of potash and other valuable manurial constituents. Fallen leaves, when burned, give four or five times as much ashes as the hard wood of the tree which bore them. To this must be added the nitrogen compounds that are not burned away when the leaves are used as a litter. The richness of the surface soil in the woods is due to the accumulation of leaves from year to year, which

there decay and leave the fertilizing elements that the leaves contained. A good gardener knows the virtues of woods' earth and uses it largely in his work. Gather the forest leaves and use them as a litter, and gain a double end—a neat absorbent, and a valuable fertilizer.

OTHER JOURNALS

Combined with the

American Agriculturist,

AT REDUCED COST.

In response to very many requests from our Readers, we have arranged to supply some Leading WEEKLY JOURNALS, and Monthly Magazines, at the rates below. The other journals will be sent *one full year* from any desired date, and the *American Agriculturist* for 1882, (and to *new* subscribers include without charge the numbers for 1881 which are issued after the subscriptions arrive.)

N. B.—All subscriptions for other Journals will be promptly sent to their Publishers, and all communications about change of P. O. address, missing numbers, etc., must be sent direct to them. ☞ The combined prices named below, do NOT apply to subscribers sent for our premiums. Fifty cents must be added to the total Club rate if the name goes into our premium lists.

AMERICAN AGRICULTURIST	*Regular Price of the two.*	*We supply both for*
with N. Y. Weekly Tribune	$3.50	$2.30
" N. Y. Semi-Weekly Tribune	4.50	3.20
" N. Y. Weekly Times	2.50	2.15
" N. Y. Semi-Weekly Times	4.50	3.60
" N. Y. Weekly World	2.50	2.15
" N. Y. Weekly Sun	2.50	2.15
" Scientific American	4.70	3.95
" Century (Scribner's Monthly)	5.50	4.65
" Scribner's St. Nicholas	4.50	3.75
" Demorest's Monthly	4.50	3.75
" Harper's Monthly	5.50	4.65
" Harper's Weekly	5.50	4.65
" Harper's Bazar	5.50	4.65
" Atlantic Monthly	5.50	4.65
" Albany (N. Y.) Journal	2.50	2.15
" Albany (N. Y.) Argus	2.50	2.15
" Boston (Mass.) Journal	3.00	2.40
" Boston Weekly Globe	2.50	2.15
" Springfield (Mass.) Republican	3.00	2.50
" Springfield (Mass.) Union	3.00	2.40
" Mirror & Farmer, Manchester, N.H.	2.50	1.95
" Burlington (Vt.) Free Press	3.50	2.50
" Hartford (Ct.) Courant	3.50	2.60
" True American, Trenton, N. J.	3.00	2.25
" Philadelphia Press	2.75	2.20
" Philadelphia Times	3.50	2.60
" Pittsburg Dispatch	3.00	2.30
" Wheeling (W. Va.) Intelligencer	3.00	2.00
" Atlanta (Ga.) Constitution	3.00	2.30
" Savannah (Ga.) News	3.50	2.75
" Cincinnati (O.) Commercial	2.50	2.15
" Cincinnati Times	2.50	2.10
" Toledo (O.) Blade	3.50	2.50
" Louisville (Ky.) Courier-Journal	3.00	2.40
" State Journal, Indianapolis, Ind.	2.50	2.15
" State Sentinel, Indianapolis, Ind.	2.50	2.25
" Detroit (Mich.) Free Press	3.50	2.50
" Detroit (Mich.) Post and Tribune	3.00	2.55
" Chicago (Ill.) Inter-Ocean	2.65	2.25
" Chicago (Ill.) Tribune	3.00	2.30
" Pioneer Press, St. Paul	2.65	2.25
" State Register, Des Moines, Iowa	3.00	2.25
" Burlington, (Ia.) Hawkeye	3.50	2.55
" Lawrence (Kansas) Tribune	3.00	2.30
" Kansas City (Mo.) Times	3.00	2.30

Commercial Matters—Market Prices.

NEW YORK, OCTOBER 7, 1881.

Very excited markets have been the rule, during the month, for most kinds of Produce, on unusually extensive dealings in the speculative favorites of No. 2 Red Wheat, No. 2 Corn, and No. 2 Oats, which have been advanced materially, chiefly through speculative influences, which have been dominant throughout the interior, as well as here, to the almost complete prostration of the export and legitimate home-trade interests. Wide and sharp fluctuations have occurred in prices, as the conflicting speculative elements—bull and bear, of which so full and explicit an account was recently given by the Editor in Chief of the *American Agriculturist*—gained or lost control, even momentarily. On the first of October, the deliveries of Grain on speculative contracts were of enormous proportions, especially at Chicago and New York, but seemed to find protection, and thus failed to lead to marked changes in values. The supplies of Grain continue to accumulate, under the formidable speculative restrictions to the export trade.... The visible supplies of Wheat—embracing the hoards at lake ports, in transit, and on the seaboard—at latest dates, embraced about 19,494,350 bushels: of Corn, 27,382,000 bushels; of Rye, 901,850 bushels; of Barley, 1,393,000 bushels, and of Oats, 6,468,000 bushels, against at the same time a year ago, an aggregate of 14,360,800 bushels Wheat, 19,812,000 bushels Corn, 664,850 bushels Rye, 1,705,300 bushels Barley, and 2,541,900 bushels Oats.

The unprecedented aggregate of Corn is the remarkable feature of the latest exhibit. This aggregate is equal to nearly 32 times the average weekly exports of Corn from the Atlantic-sea-board—or, on this basis, equal to eight months' shipments. The amounts of Wheat and Corn in store at New York alone, at the latest dates, were respectively, 4,933,900, and 5,188,300 bushels; of Oats, the aggregate was 2,307,000 bushels. New York has received, since Jan. 1st, 36,518,600 bushels Wheat, 37,335,800 bus. Corn, 3,590,500 bushels Oats, and 4,197,100 bbls. Flour. It has exported in the same time, 34,979,600 bushels Wheat, 25,378,600 bushels Corn, and 3,667,000 bbls. Flour. The deliveries by Canal at Albany, this season, have been of Wheat, 10,953,500 bushels, and of Corn, 13,636,000 bushels, against, in the same season of 1880, to the same date, 21,219,700 bushels Wheat, and 27,604,600 bushels Corn. The grand aggregate of Wheat in sight—in the United States and Canada, and on passage for the United Kingdom and the Continent—is now 40,587,000 bushels, and of Corn, 29,564,700 bushels, against 30,770,650 bushels Wheat, and 25,742,800 bushels Corn, same time last year.

In the face of these enormous totals, the prevalent rampant speculation in this country keeps prices relatively much higher here than in Western Europe, and thus, while arresting exports from our surplus stocks, contributes to make a profitable market for other sources of supply, to the serious ultimate detriment of our producers, and very probable derangement and injury of all our industrial interests. Toward the close, prices of Breadstuffs and Provisions developed more or less of weakness and irregularity, and many operators seemed apprehensive of the general position, particularly in view of the hardening course of the money market, as against borrowers, especially of the speculative class. Cotton also left off heavily. Wool met with a fair demand and gained in price. Tobacco attracted less attention; Western Leaf closed easier; Seed Leaf, however, ruling strong. Hops have been in much better request, and have been advanced about 2c. @ 3c. per lb. Late English crop roports were of an unfavorable tenor. Seeds have been ruling lower, on a restricted business.

Prices of Fertilizers.

Nitrate of Potash (95 per cent), per lb	7½@8½c.
Sulphate of Potash (potash 44 per cent), per lb	3½@4 c.
do. do. (potash 27½ per cent, per lb	1½@1¾c.
German Potash Salts (potash 12 to 15 p. c.), p. ton	$12.00@15.00
Muriate of Potash (potash 50 per cent), per lb	2¼@2½c.
Nitrate of Soda, per lb	4@4½c.
Sulphate of Ammonia (25 per cent), per lb	5¾@6c.
Dried Blood (ammonia 13 per cent), per ton	$55.00@60.00
No. 1 Peruv. Guano, guaranteed, ₱ ton	60.00
Soluble Pacific Guano, per ton	45.00
Excelsior Fertilizer Co., Fine Ground Raw Bone	45.00
Mapes' Complete Manure (clay soils), per 1,000 lbs	26.00
do. do. do. (light soils), per 1,000 lbs	26.50
do. do. do. "A" Brand (wheat), ₱ 1,000 lbs.	21.00
do. Tobacco do. do.	58.00
do. Fruit and Vine Manure, per ton	37.00
do. Pure Raw Bone, per ton	38.00
Matfield Fertilizer, No. 1	45.00
do. do. No. 2	30.00
Homestead Superphosphate, per ton	40.00
do. Tobacco Grower, per ton	60.00
Banner Raw Bone Flour, per ton	45.00
Bowker's Wheat Phosphate, per ton	40.00
do. Acid Phosphate, per ton	25.00
do. Soluble Bone, per ton	35.00
do. Grain Phosphate, per ton	40.00
do. Hill and Drill Phosphate, per ton	45.00
Stockbridge Corn manure, per ton	50.00
do. Potato manure, per ton	50.00
Stockbridge Rye Manure, per ton	45.00
do. Wheat Manure, per ton	45.00
do. Seeding Down Manure, per ton	40.00
Walton, Whann & Co.'s Raw Bone Phosphate, per ton	40.00
Gypsum, Nova Scotia, ground, per ton	8.00

Paint for the Million.—It has given us pleasure in past years, to warmly commend to our readers the Asbestos Liquid Paints, which the manufacturers claim "are the purest, finest, richest, and most durable." It will be seen on another page, that H. W. Johns' M'f'g Co. make a special inducement between now and the 1st of December for those who may desire to test the "Asbestos."

Out of the Ashes.—We have received an illustrated circular from Mr. D. F. Beatty, the famous manufacturer of Organs and Pianos, in which he says: "My factory some time ago was destroyed by fire, but ere the embers had ceased to smoke, it began like the fabled Phœnix of old, to rise again from its ashes." He then goes on to say that the public can order organs and pianos from him for Christmas and New Year's presents, just as if nothing had happened. The wonderful skill and energy which Mr. Beatty has displayed under trying circumstances shows that he is a typical American, and will command the sympathy of his countrymen who admire push and pluck.

"Cultivation of Grasses and Forage Plants at the South."—Last month, p. 422, we noticed that a new and revised edition of this useful pamphlet had been published. As there was nothing to indicate that it would not be sold as formerly, we gave the price at 25c. We have since learned that the price of the new edition will be 30 cents. A fact which those who order the work will please observe.

BEATTY

ORGANS & PIANOS.

BEATTY'S ORGANS, Church, Chapel & Parlor, $30 to $1000, 2 to 32 stops. Have you seen "Beatty's Best" Parlor Organ? Price only $107.75 Chapel Organs $97.75 THE "LONDON," 18 stops 5 full sets of Reeds, ONLY $65. THE PARIS now offered FOR $85. Other desirable new styles now ready. ☞

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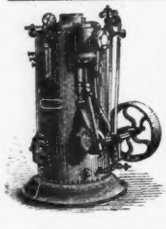

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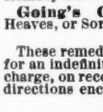

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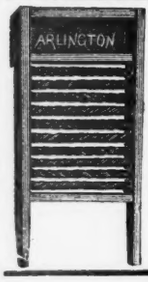

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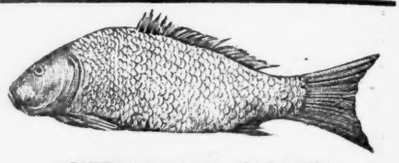

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